Structural implications of the activation of moral disengagement in social cognitive theory

Ameetha Garbharran

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DECLARATION

I hereby declare that this thesis is my own work and has not been submitted to any other university.

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Ameetha Garbharran

____day of _____**, 2013**

DEDICATION

This thesis is dedicated to my beloved Spaniel, Coda. When I started on this journey, I never imagined that I would reach the end of it without you. Your antics never ceased to bring a smile to my heart. You handled your sickness with such grace and dignity. I can only wish to have a fraction of the zest for life that you had. Even though you are no longer here, your spirit endures and your paw-prints have been indelibly etched in my soul.

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ABSTRACT

This thesis was constructed on the foundation of two broad theoretical criticisms levelled against Bandura's (1986) social cognitive theory. The first was the lack of clarity about what constituted the building blocks of the theory and the second was the lack of clarity about how these constituent components interacted in consistent and predictable ways as an integrated model of human behaviour. These 'theory-level' criticisms, which detracted from the empirical testability of social cognitive theory, seemed to have filtered down to the level of its individual building blocks. Therefore, moral disengagement, which constituted the focal variable of interest in this investigation, was not unaffected by them. Bandura's (1986) theoretical presentation of moral disengagement as either an eight or four-dimensional construct and the empirical treatments of moral disengagement by Bandura and his colleagues as a uni-dimensional (Bandura, Barbaranelli, Caprara & Pastorelli, 1996a; Bandura, Caprara, Barbaranelli, Pastorelli & Regalia, 2001b) and a four-dimensional variable (McAlister, Bandura & Owen, 2006), raised questions about its dimensionality. The first objective of this study was to examine moral disengagement's dimensionality and the stability of its internal factor structure (i.e. longitudinal measurement invariance) over time. The general lack of clarity about how the constituent components of social cognitive theory were expected to cohere as an integrated framework of human behaviour had specific implications for the moral disengagement construct and its temporal position relative to other social cognitive variables. The second objective of this study was to examine moral disengagement's temporal sequences relative to select social cognitive constructs (viz. proficiency-based self-efficacy, intention, and past and future behaviour) in order to comment on the likely temporal positions of these constructs relative to each other in the context of a model for predicting antisocial behaviour. Due to the exclusive activation of moral disengagement in antisocial contexts, the examination of its dimensionality and temporal sequences was contingent on an antisocial context. Software piracy, as a specific instance of antisocial behaviour, served as the context in which moral disengagement was researched in this study. A pilot investigation was conducted to test the psychometric properties of the scales that were developed to measure moral disengagement, proficiency-based self-efficacy, intention and behaviour in this study. Once their psychometric robustness was established, these scales were used in the context of a main longitudinal investigation separated by a three to four month time-lag in order to achieve the two main research objectives. Using the structural equation modelling family of data analysis techniques (specifically, confirmatory factor analysis and path analysis), the results of the main longitudinal study revealed that moral disengagement emerged as most meaningful as a uni-dimensional construct which consisted of four aggregated sets of items which represented the clusters of moral disengagement mechanisms that were likely to be activated at the four points in the self-regulation process envisaged by Bandura (1986). The findings suggested that this factor structure was longitudinally invariant when moral disengagement was measured across two assessment waves. Moral disengagement appeared to temporally precede intention and future behaviour and to temporally follow past behaviour. Self-efficacy, however, seemed to temporally precede future behaviour and to temporally follow past behaviour but unlike moral disengagement, self-efficacy appeared to temporally follow intention. Therefore, intention appeared to completely mediate the interaction between moral disengagement and proficiency-based self-efficacy in this study. The theoretical and practical implications of these findings were examined and directions for future research were proposed.

Keywords: social cognitive theory, moral disengagement, self-efficacy, dimensionality, temporal sequence, software piracy

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CHAPTER 1: INTRODUCTION

Human behaviour has always existed at the centre of the psychologist's domain of inquiry and has been a source of fascination, particularly for social psychologists, in their search for meaningful ways to model behaviour to better predict and understand it. In mainstream social psychology the theories of reasoned action (Fishbein & Ajzen, 1975), planned behaviour (Ajzen, 1991), interpersonal behaviour (Triandis, 1977) and social cognitive theory (Bandura, 1986) were proposed for explaining and modelling human behaviour. An examination of these mainstream theories revealed considerable overlap in terms of their constituent components. Attitudes and subjective norms featured consistently in all of them. Self-efficacy, however, did not. It was only explicitly included in the theory of planned behaviour and in social cognitive theory. Contextual determinants of human behaviour were explicitly included in the theory of planned behaviour (in the controllability component of the perceived behavioural control construct), the theory of interpersonal behaviour (in the form of the facilitating conditions variable) and social cognitive theory (in the form of the facilitators and impediments construct) but this took on different forms across these theoretical frameworks ranging from subjective perceptions of the impact of environmental influences to objective environmental impacts on human behaviour. Intention was consistent across all the theoretical frameworks as was future behaviour but only the theory of interpersonal behaviour and social cognitive theory appeared to provide for past behaviour as a predictor in their explanatory equations.

Interestingly, social cognitive theory and the theory of interpersonal behaviour were also the only two frameworks to acknowledge the importance of self-regulation in the prediction of human behaviour. However, of the two, only social cognitive theory proposed moral disengagement as a tangible, well-defined and measurable construct to understand how individuals regulated their own behaviour when confronted with options that conflicted with their internal social and moral standards. In the theory of interpersonal behaviour, a brief and fleeting reference to moral obligation was noted in the context of a solitary item in an example questionnaire, but no clear definition of the moral obligation construct was encountered. Thus, even though the theory of interpersonal behaviour appeared to cater for the theoretical notion of self-regulation or self-monitoring, it did not offer a clear, measurable construct situated within the self-regulation process to predict antisocial conduct. It seemed, therefore, on the basis of this analysis that moral disengagement and moral obligation were the two tangible constructs leveraged by the

mainstream theories of social psychology to specifically predict human behaviour that deviated from internal moral and socially acceptable standards and codes of conduct.

Moral obligation was defined as "an expectation that some particular act is required of one owing to a given set of socially accepted moral standards" (Reber, 1995, p. 470). Moral disengagement, on the other hand, was defined as the process by which individuals overrode their internal social and moral standards, using cognitive reconstrual strategies that psychologically transformed detrimental behaviour into conduct that they believed was in the service of good and noble ends (Bandura, 1986). Thus, while moral obligation seemed to focus on understanding how one ought to behave to ensure congruence between behavioural choices and internal moral standards and assessing whether one's behaviour conformed to internal moral codes, moral disengagement seemed to go one step further. When individuals assessed their behaviour and realised that it did not conform to their internal moral codes and standards, but valued the outcomes that such behaviour would bring, they activated the moral disengagement process to override their internal standards to give themselves the license to engage in detrimental behaviour by cognitively re-construing it as benign and socially and morally acceptable. Thus, moral disengagement required a sophisticated psychological manoeuvring that individuals engaged in to justify their antisocial and detrimental actions to themselves in order to facilitate the enactment of these behaviours which they would otherwise have ruled out because of the conflict it would create with their internal standards of what was socially and morally acceptable. It was this unique quality of moral disengagement that captured the author's interest. The 21st century has been riddled with horrific stories ranging from terrorism and war to random acts of violence that led to the mass killing of innocent people that have begged the question: What cognitive processes do the perpetrators of atrocities against other human beings invoke to justify their antisocial behaviour and to make themselves believe that their behaviour is in the service of honourable social and moral ends? The author believes that understanding the psychological mechanisms that motivate and support the enactment of antisocial human behaviour is central to answering this question. In other words, researching moral disengagement to get an insight into the psychological gymnastics individuals engaged in to transform antisocial and harmful behaviour into benign conduct was key to understanding the root of these social ills so that measures could be taken to curb them in the future. This resulted in social cognitive theory being selected as the theoretical framework for this study so that the author could specifically access the moral disengagement construct for empirical examination.

Bandura (1977, 1986) portrayed social cognitive theory as a universal, all-encompassing theoretical paradigm which could be applied to explaining and predicting the full spectrum of behaviour. While this conceptualisation earned it the accolade of an ambitious and impressive attempt at providing a grand theory of human behaviour (Baron, 1987; Cahill, 1987); a tour de force (Locke, 1987), it also yielded the criticism that in attempting to explain too much, social cognitive theory may have inadvertently diminished its own explanatory potential; by casting its explanatory net too wide it may not have succeeded in explaining any one thing well (Meichenbaum, 1990). Notwithstanding the aspersion cast on its explanatory potential, researchers recognised the pragmatic value (Ogden, 2003) of social cognitive theory and leveraged it in their empirical work to investigate a broad spectrum of human behaviour ranging from promoting health behaviours (Bandura, 2004a), exercise (Plonczynski, 2000) and sport to examining the perpetration of inhumanities (Bandura, 1999), the execution process (Osofsky, Bandura & Zimbardo, 2005), terrorism (Bandura, 1990b), military action (Donsbach, Kay & McAlister, 2000; McAlister, Bandura & Owen, 2006), violence (Caprara, Regalia & Bandura, 2002), aggressive behaviour (Bandura, Barbaranelli, Caprara & Pastorelli, 1996a) and transgressive behaviour (Bandura, Caprara, Barbaranelli, Pastorelli & Regalia, 2001b).

The expansive breadth of application of social cognitive theory in empirical circles underscored its universality and showcased its relevance for understanding both prosocial and antisocial behaviours. However, this portrayal had the net effect of obscuring the structural intricacies of the theory by down-playing the unique differential structural components required for explaining prosocial and antisocial conduct. The empirical research (Bandura, 1999; Osofsky et al., 2005; Bandura, 1990a; 1990b; Donsbach et al., 2000; McAlister et al., 2006; Caprara et al., 2002; Bandura et al., 1996a; Bandura et al., 2001a) revealed that moral disengagement was unique to and was only activated in antisocial contexts in which individuals were required to contemplate choices that deviated from their internal standards. In these contexts, individuals were likely to experience states of affective disequilibrium when their internal standards stood in opposition to attractive alternatives which they believed could yield positive outcomes. When confronted with such situations they were likely to selectively activate or disengage from internal controls by invoking the mechanisms of moral disengagement. The uniqueness of the moral disengagement construct to structural models of social cognitive theory for predicting antisocial behaviour implied that these models were compositionally distinct from structural models for explaining prosocial behaviour in which the moral disengagement construct was defunct. Thus, the building blocks of social cognitive models for predicting prosocial versus antisocial behaviour and the

associations among their constituent variables were likely to be different by virtue of the presence of the moral disengagement construct in one case and its absence in the other. This implied that social cognitive theory could not technically be consistently applied (using the same set of building blocks) to explaining antisocial and prosocial behaviour thereby, impeding its potential to be empirically tested as a single, universal theory of human behaviour. Bandura (1986) failed to explicitly identify what the constituent components of social cognitive theory were, which implied that he also failed to explicitly acknowledge that structural models would be comprised of different sets of constituent constructs and would assume different structural forms in antisocial and prosocial contexts, given that moral disengagement was exclusively activated in antisocial contexts.

Bandura's (1986) failure to explicitly identify the building blocks of structural models of social cognitive theory and to comment on how these constituent components were likely to interact with each other in predictable ways as an integrated theory of human behaviour were two key theoretical gaps identified in this study that called its empirical testability into question. The research questions that this investigation aimed to examine ultimately emanated from these two theoretical gaps. Moral disengagement's unique activation in antisocial contexts earned it a position as a definite predictor in structural models of social cognitive theory aimed at explaining antisocial conduct. While the author was keen to identify the other constituent components for explaining antisocial behaviour and to compare these with the building blocks of structural models for explaining prosocial behaviour (which necessarily did not include moral disengagement as a predictor), it was not possible to engage in a detailed examination of all the variables identified as the constituent components of social cognitive theory in this study. Thus, after briefly defining each of the other variables identified as predictors in social cognitive theory for explaining both antisocial and prosocial behaviour (moral disengagement appeared to be the only differentiator between these two sets of variables), the author honed in on the unique moral disengagement construct which constituted the focal variable in this investigation. It seemed that some of Bandura's (1986) lack of clarity about what constituted the building blocks of social cognitive theory spilled over into his theoretical conceptualisation of the moral disengagement construct which introduced questions about its dimensionality. In the context of social cognitive theory, Bandura (1986) conceptualised moral disengagement as an eight-dimensional construct which could also be abstracted to a four-dimensional construct by aggregating the eight discrete mechanisms of moral disengagement in terms of the four points in the self-regulation process at which they were likely to be activated (Bandura, 1986). Thus, it was unclear whether moral

disengagement was, in fact, an eight-dimensional construct or a four-dimensional one based on Bandura's (1986) theoretical conceptualisation. Further complexity was introduced when, in spite of the theoretical conceptualisation of moral disengagement as a multi-dimensional construct, based on evidence from empirical research, Bandura et al. (1996a; 2001b) concluded that it was a uni-dimensional construct. In later empirical research, in which Bandura was credited as an author, the idea that moral disengagement was multi-dimensional seemed to be resurrected when it was tested as a four-factor variable (McAlister et al., 2006). Thus, there was a distinct lack of clarity about moral disengagement's dimensionality, which appeared to originate with Bandura, and this formed the basis for the first set of research questions in this study.

It was noted earlier that Bandura's (1986) failure to comment on how the constituent components of social cognitive theory interacted with each other in predictable patterns as an integrated theory of human behaviour constituted the second major theoretical gap in this study. This, too, called the theory's empirical testability into question. Since moral disengagement was identified as the focal variable of interest in this investigation, the interactions between it and other social cognitive variables were of primary import. Bandura (1986) did not offer much in the way of theoretical proposals about how the social cognitive variables were likely to interact with each other to predict human behaviour so there was effectively no theoretical springboard from which to launch this exploration. The author, therefore, started from a blank theoretical slate and looked to the empirical research for clues about how moral disengagement was likely to interact with other social cognitive variables to predict antisocial behaviour. For practical reasons it was not possible to explore moral disengagement's interactions with all the other social cognitive variables in this study so for the purpose of this investigation only its interactions with proficiency-based self-efficacy, intention and behaviour were examined. While this did not enable the author to propose a complete structural model of social cognitive theory for explaining antisocial conduct, it did contribute insights that helped the author to comment on moral disengagement's temporal position in relation to proficiency-based self-efficacy, intention and behaviour in the context of a structural model for predicting antisocial behaviour. Despite its obvious incompleteness, the author believes that this approach served as a useful starting point for piecing together a comprehensive structural model of social cognitive theory for explaining antisocial behaviour. In addition to understanding moral disengagement's temporal position in relation to self-efficacy, intention and behaviour (past and future), the author also undertook to explore the temporal positions of each of these additional social cognitive constructs in relation to each other. Exploring moral disengagement's temporal position in relation to self-efficacy,

intention and behaviour and the temporal positions of the latter three variables in relation to each other were central to shedding light on the second set of research questions in this study that centred on the interactions between social cognitive constructs.

The centrality of moral disengagement to this study necessitated the selection of an antisocial phenomenon as the subject of the present investigation since, as noted earlier, it was only in the context of antisocial behaviour that moral disengagement was activated. The ethical considerations, implications and challenges involved in researching antisocial behaviours such as aggression, violence and other examples of heinous criminal behaviour guided the researcher away from examining the activation of moral disengagement in the context of conventional instances of deviance that resulted in grievous harm to others towards a more non-threatening context. The act of pirating software was conceived of as an instance of antisocial conduct (Eining & Christensen, 1991) that was fairly innocuous because it did not typically result in direct grievous harm to others when compared to other types of deviant behaviour. Thus, the context of software piracy was selected as the setting in which to research the activation of moral disengagement in this study. This highlighted a key assumption. The author assumed that the moral disengagement mechanisms would, in fact, be activated in relation to the behaviour of pirating software implying that it was likely to be interpreted by the respondents as an instance of antisocial conduct in this study.

In addition to requiring an antisocial context to elicit the activation of moral disengagement, this study was contingent on a longitudinal research design for the following reasons. First, the ultimate dependent variable was software piracy behaviour which required a temporal separation between the assessment of the predictor measures such as moral disengagement, proficiency-based self-efficacy and intention and the criterion measure of future behaviour in order to facilitate the examination of causal sequences between the predictors and the criterion. Second, an important aim in this study was to comment on the likely temporal sequences or interactions between the social cognitive constructs, specifically between moral disengagement and the other variables considered in this study (viz. proficiency-based self-efficacy, intention and behaviour) and the interactions and temporal sequences of the other variables with each other. Social cognitive theory proposed that all the constructs would interact with one another in a pattern of reciprocal determinism implying that each construct would cause and be caused by every other construct. This was accommodated in the research design of this study by catering for bi-directional relationships (i.e. two-way causality) and temporal lags (through the use of a three to

four month time-lag between measurement occasions) to realistically allow for the interplay between causes and effects to unfold over time. The author believed that the longitudinal research design allowed for the research aims to be meaningfully accomplished by creating opportunities to comment on causality and temporal sequences and by providing the opportunity to verify that the constructs being measured over time were longitudinally invariant and thus, suitable for inclusion in the longitudinal investigation.

The chapters in this thesis will be laid out as follows. Chapter 2 will offer a theoretical review of Bandura's (1986) social cognitive theory. The main gaps in social cognitive theory will be explored and the implications of these gaps for understanding moral disengagement as a unique building block for predicting antisocial behaviour will be considered. The specific context of software piracy in which the activation of moral disengagement was researched in this study will be reviewed in Chapter 3. This chapter will present a conceptual review of software piracy together with a review of the empirical literature that leveraged the theories of reasoned action, planned behaviour, interpersonal behaviour, and social cognitive theory to explain it as a specific instance of antisocial behaviour. A detailed examination of the empirical software piracy research that leveraged social cognitive theory as the theoretical frame of reference will be undertaken to understand moral disengagement's dimensional properties and the way in which it interacted with other social cognitive determinants in the context of software piracy. The gaps and questions that arose from this analysis together with the theoretical gaps and questions that were raised in the previous chapter about social cognitive theory were merged to inform the research questions that ultimately guided this exploratory study. The research questions are presented in Chapter 4. Chapter 5 outlines the methodology used to conduct the main longitudinal study as well as the preliminary pilot study that preceded it in order to validate the scales used to measure moral disengagement, proficiency-based self-efficacy, intention and behaviour. Chapter 6 presents the results of the pilot study and highlights how the conclusions derived from this exploration informed the measures that were ultimately used in the main longitudinal investigation. It also presents the results from the main longitudinal investigation which was designed to explore the research questions. In Chapter 7 the findings from the main longitudinal study are discussed and the context-specific and theoretical implications of these findings are presented. Finally, the conclusions derived from this investigation are presented in Chapter 8.

CHAPTER 2: SOCIAL COGNITIVE THEORY

2.1 Introduction

The central tenets and theoretical propositions of social cognitive theory were first presented in Albert Bandura's (1977) early contributions to the discipline of psychology under the label of social learning theory. However, from the very beginning the scope of his theoretical postulates extended beyond issues of learning to include psychosocial phenomena such as motivational and self-regulatory mechanisms (Bandura, 1986). Thus, the social learning theory label was too narrow and offered an inadequate description of what the theory actually explained. Therefore, in a later publication, Bandura (1986) re-labelled it to social cognitive theory and pitched it as a broader framework for understanding human motivation, thought and action. Social cognitive theory served as the theoretical foundation of this study. In this chapter the author will present a theoretical review of social cognitive theory featuring three broad themes: 1) an exploration of its foundational tenets and theoretical intricacies; 2) a critique of the theory as a framework for understanding human behaviour; and 3) an examination of the methodological implications of the internal mechanics of social cognitive theory, highlighting the practical ways in which it could be meaningfully applied to the task of predicting human behaviour. This analysis will culminate in the identification of the key problems, gaps and limitations inherent in social cognitive theory which are pertinent to this investigation. It is from these that the specific theoretical challenges this study will endeavour to address, will be derived.

2.2 The central tenets of social cognitive theory

Social cognitive theory is a theoretical paradigm that proposed a model of human nature and causality (Bandura, 1986). Its primary objective was to analyse human motivation, thought and action to predict and explain behaviour and behaviour change (Bandura, 1974; 1986). Social cognitive theory's basic assumptions and tenets were grounded in two foundational theoretical principles: interactionism and determinism. Mainstream psychological traditions such as behaviourism and trait approaches tended to favour uni-directional causal models which exclusively leveraged either external environmental determinants or internal personal determinants to explain human behaviour. Social cognitive theory espoused a unique brand of *interactionism* which rejected uni-directional notions that treated persons and situations as

independent entities that combined to produce behaviour. It also rejected selectively bi-directional notions which recognised the two-way interaction of personal and environmental factors but perpetuated a uni-directional view of behaviour. Behaviour was treated not merely as an outcome of the interaction between personal and environmental influences but as an interacting determinant that affected the continual transaction between individuals and their contexts. Thus, social cognitive theory's interpretation of the principle of interactionism, the first pillar on which its theoretical foundation was constructed, was based on the concept of triadic reciprocality which recognised the complex interactions of behaviour, cognitive and other personal factors and environmental influences as the three broad classes of determinants of human behaviour (Bandura, 1978a; 1986).

The acknowledgement that environmental events and personal factors (two of the three major classes of determinants) contributed to the determination of behaviour implied that human beings were active agents rather than passive recipients of environmental forces impinging on them. This agentic view of human beings underpinned the principle of *determinism* (Bandura, 1978a); the second pillar of social cognitive theory. Human beings were not automatons controlled exclusively by environmental forces but were entities with self-influence, discretion and freedom to shape their own behaviour, the outcomes of their actions and their environments (Bandura, 2006). Bandura (2006) identified four core properties of human agency: intentionality, forethought, self-reactiveness and self-reflectiveness which human beings leveraged to negotiate their way through the complexities and challenges in their worlds. These unique abilities enabled them to make realistic and accurate judgements about their own capabilities, anticipate the likely effects of different realities and alternatives, evaluate and respond appropriately to sociostructural (environmental) opportunities and constraints and regulate their behaviour appropriately in the light of cognitive appraisals of situations. While human agency was deemed an important contributor to human motivation, thought and action, the extent of human self-influence was not considered absolute or unfettered by the other major determinants of behaviour (i.e. environmental conditions and behaviour itself). This implied that the determinism espoused in social cognitive theory was not envisaged as a one-way process but as a triadic series of interlocking two-way processes in which each of the major determinants interacted with every other determinant in a bi-directional fashion; a phenomenon that Bandura (1978a) termed triadic reciprocal determinism (see Figure 2.1 for a graphical representation of this principle). Reciprocal determinism captured the profound interdependence between the principles of determinism and

interactionism and highlighted their inseparability as the cornerstones of social cognitive theory as a paradigm for explaining human behaviour.

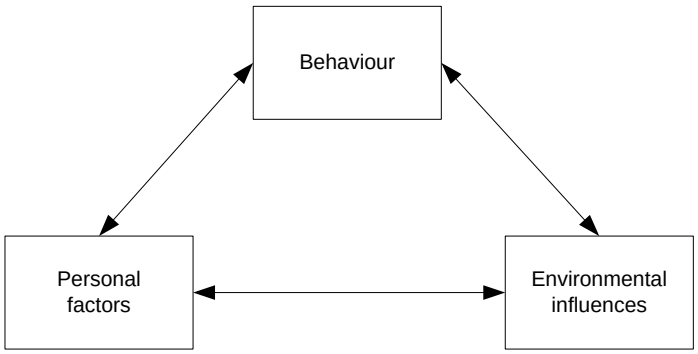


Figure 2.1: A graphical re-presentation of the relationships between the three major classes of social cognitive determinants operating in a pattern of triadic reciprocal causation (Bandura, 1986, p.24)

Therefore, social cognitive theory was envisaged as a complex theoretical paradigm invested with the mammoth task of explaining all possible permutations of human behaviour (Bandura, 1977; 1986). This one-size-fits-all portrayal may have been well received in some circles because it seemed to successfully simplify a complex phenomenon by reducing it down to its 'lowest common denominators'. However, this presentation as a comprehensive theory of human behaviour also highlighted important theoretical challenges. It is to a theoretical critique of the social cognitive framework that the discussion will now turn.

2.3 A theoretical critique of social cognitive theory

The appealing conceptualisation and presentation of social cognitive theory and its underlying philosophy and principles using sophisticated and eloquent language could have been seductive and potentially misleading by elevating a series of common-sense (Smedslund, 1978a), axiomatic ideas to the level of a specific and testable empirical theory (Meichenbaum, 1990). This raised the question of whether social cognitive theory was, in fact, an empirically testable theory of human behaviour. Smedslund's (1978a; 1978b) early criticism that it was not empirically testable was essentially philosophical. He argued that the basic premises of the theory were a set of logical relationships among a series of concepts grounded in common sense which implied that they had no empirical consequences and were not empirically testable (Smedslund, 1978b). While the debate juxtaposing logical verifiability with empirical testability raged in the conceptual domain there were tangible problems that practically inhibited social cognitive theory's empirical

testability. First, Bandura (1986) did not define a clear set of variables as the building blocks of the theory. Thus, it was not clear how he envisaged the three major classes of determinants (i.e. personal factors, environmental events, and behaviour) would consistently be operationalised as measurable constituent constructs in empirically testable structural models. Second, he did not offer a comprehensive account of how the constituent components were expected to interact with each other in predictable ways as an integrated framework to explain human behaviour. Thus, there was uncertainty surrounding what the components of structural models of social cognitive theory should be and how they were meant to relate to each other in a holistic manner which cast doubt on its measurability and generalisability; two keystones of empirical testability. The problem of empirical testability, therefore, constituted a central theme in this theoretical critique. The two main gaps in social cognitive theory that called its empirical testability into question will be unpacked next.

2.3.1 Lack of a consistent set of building blocks in social cognitive theory

Bandura (1986) did not propose a clearly delineated, standard set of variables as the predictors of human behaviour. His publications on social cognitive theory (and its precursor, social learning theory) were essentially theoretical and while he conceptually pitched it as paradigm that had wide applicability, he seemed to place less emphasis on the details of its practical operationalisation and application to real-world phenomena. However, Bandura (1986) did clearly identify personal factors, environmental events and behaviour as the three broad classes of determinants of human behaviour, even though he was not equally explicit about the concrete social cognitive constructs through which these broad classes of determinants could be operationalised. This led to the presentation of a theory in which it was unclear what the specific variables that constituted the primary predictors of human behaviour were. Thus, each time researchers leveraged social cognitive theory to predict behaviour, they had to carefully interpret Bandura's (1986) propositions to extract what, in their estimation, constituted the building blocks of the structural models they aimed to test. This implied that there could have been as many different interpretations of the constituent components of social cognitive theory as there were attempts at leveraging it as a model for predicting and explaining human behaviour. The absence of a consistent set of building blocks in Bandura's (1986) presentation meant that social cognitive theory could not technically be tested as a standardised theoretical framework and at best, could only be researched as a series of non-standardised and inconsistent models constructed on the basis of divergent interpretations.

In a seeming effort to address the shortcoming of the lack of a consistent set of constituent components, Bandura (2000; 2004a) endeavoured to clarify the constructs that comprised the building blocks of social cognitive theory in a common conceptual causal model oriented towards predicting personal and organisational performance accomplishments and health promoting behaviour respectively. The proposed model concretised the components of the theory and offered insights about their causal sequences. In this section, the first contribution of this conceptual model (i.e. proposing the constituent components of social cognitive theory) will be examined. Self-efficacy was identified as the focal and originating variable and affected behaviour both directly and indirectly through its influence on goals (intention), outcome expectations and sociostructural factors acting as facilitators or impediments. While the conceptual model was a useful starting point for identifying the constructs that served as predictors of human behaviour, it presented with shortcomings. First, it was not empirically tested and therefore, at best, only offered a theoretical understanding of the building blocks and their causal sequences. Second, its construction did not appear to honour the fundamental social cognitive tenet of reciprocal determinism. Later this chapter will feature a discussion of how the internal structural mechanics of reciprocality and temporality were derived from the central principle of reciprocal determinism and will explore the methodological implications of these structural properties. Third, this model was specifically designed for explaining instances of prosocial behaviour and did not include moral disengagement as one of its constituent components. The omission of moral disengagement in the structural model for explaining personal and organisational performance accomplishments and health promotion as instances of prosocial behaviour is central to the discussion that follows.

If, in Bandura's conceptualisation, moral disengagement was not relevant as a predictor of prosocial behaviour, then when was it relevant? Empirical research of structural models of social cognitive theory examining the perpetration of inhumanities (Bandura, 1999), the execution process (Osofsky, Bandura & Zimbardo, 2005), terrorism (Bandura, 1990a), military action (Donsbach, Kay & McAlister, 2000; McAlister et al., 2006), violence (Caprara, Regalia & Bandura, 2002), aggressive behaviour (Bandura et al., 1996a), and public transgressive behaviour (Bandura et al., 2001b) revealed that moral disengagement was unique to and was only activated in antisocial contexts. The uniqueness of the moral disengagement construct to social cognitive models for predicting antisocial behaviour implied that these models were compositionally distinct from those for explaining prosocial behaviour in which the moral disengagement construct was defunct. Thus, the building blocks of structural models for predicting prosocial

versus antisocial behaviour and the associations among their constituent variables were likely to be different by virtue of the presence of the moral disengagement construct in one case and its absence in the other. Bandura (1986) failed to explicitly acknowledge that structural models of social cognitive theory would be comprised of different sets of constituent constructs and would, consequently, assume different structural forms in antisocial and prosocial contexts. In so doing, he seemed to overlook a fundamental nuance of the theory. Therefore, in addition to not being clear about what the building blocks were, Bandura (1986) failed to acknowledge that the constituent components of social cognitive theory for explaining prosocial behaviour were likely to be different from those used to understand antisocial behaviour with moral disengagement being the key differentiator in the latter instance. This discrepancy implied that social cognitive theory could not technically be consistently applied to explaining antisocial and prosocial behaviour further contributing to the lack of consistency for which it was criticised earlier and, consequently, further impeding its empirical testability as a universal theory of human behaviour.

Moral disengagement's unique relevance to explaining antisocial behaviour positioned it as a definite predictor in structural models of social cognitive theory aimed at understanding specific instances of antisocial conduct. However, in Bandura's theoretical conceptualisations, it was not clear if it was appropriate to simply add moral disengagement to the full list of predictors of prosocial behaviour or if it existed alongside only some of these predictors to yield a set of variables for understanding antisocial behaviour. In an attempt to clarify these points of uncertainty and to ultimately, identify a standardised set of predictors (with the understanding that the constituent components of social cognitive theory would be different for explaining antisocial and prosocial conduct), the author turned to Bandura's empirical research to examine the variables he included in structural models for investigating specific examples of prosocial and antisocial behaviour.

2.3.1.1 Bandura's empirical attempts to specify social cognitive theory's building blocks

Table 2.1 contains a list of the constituent components of social cognitive theory used by Bandura and his colleagues in empirically tested structural models for predicting specific instances of prosocial and antisocial behaviour. The entries in the table are chronological within each category (prosocial behaviour and antisocial behaviour) and represent the source studies from which the structural models were originally derived. This implies that other publications in which these models were restated were not included in the table. For example, while Ozer and Bandura's

(1990) original personal empowerment model was included, a later study in which it was re-presented (Benight & Bandura, 2004) was not. Similarly Wood and Bandura's (1989a) managerial decision-making model was included while other publications by Bandura (1988; 1990c; 1991b; 1991c; 1993) in which it reappeared were not; and Bandura et al.'s (1996b) model of children's academic functioning was included while a later study in which it was restated (Bandura, 1998) was not. The labels Bandura (2000; 2004a) assigned to the theory's building blocks in his conceptual presentations of a common structural model for explaining personal and organisational performance accomplishments and health promoting behaviour (two specific instances of prosocial behaviour) were used as a starting point to represent a standardised list of the elements of social cognitive theory for predicting prosocial behaviour. Moral disengagement was added to this list to capture a standardised set of social cognitive variables relevant for explaining antisocial behaviour. The names assigned to the constructs in the empirically tested published structural models were not consistent with these standardised labels. Therefore, the author undertook a mapping exercise to match the names of the empirically tested constructs to those of their likely counterparts in the standardised list.

A cursory review of the construct listing in Table 2.1 revealed some fundamental inconsistencies. The irregularity in the labels assigned to the social cognitive constructs used to predict prosocial and antisocial behaviour across the twenty empirical studies constituted the first inconsistency. This drew attention to Bandura's (together with his colleagues) lack of a universal and consistent vocabulary for conveying what the constituent components of social cognitive theory were across the diverse spectrum of empirical studies. The author concedes that the unique contexts in which these studies were conducted may have required some or all of the building blocks to be assigned more meaningful names. For example, it may well have been more meaningful to label outcome expectations, guilt and restitution in the study on delinquent and aggressive behaviour by Bandura et al. (1996a). However, in the author's opinion, Bandura and his colleagues should have explicitly linked constructs with context-specific labels back to the generic social cognitive building blocks that they represented to facilitate the testing of consistent and standardised social cognitive models of human behaviour instead of highly specialised and individualised models that could ultimately not be readily compared with each other, if at all.

Table 2.1: Comparative analysis of constituent components of social cognitive theory used in structural models to predict prosocial and antisocial behaviour

PROSOCIAL BEHAVIOUR								
Author	**Theme**	**Moral disengagement**	**Self-efficacy**	**Outcome expectations**	**Facilitators & impediments**	**Intention**	**Behaviour**	
							Past	**Future**
Wood & Bandura (1989a)	Managerial decision-making		Self-efficacy		Personal: Analytical strategies	Personal goals	Past performance	Performance
Wood & Bandura (1989b)	Managerial decision-making		Self-efficacy		Personal: Analytical strategies	Personal goals	Past performance	Performance
Bandura & Wood (1989)	Managerial decision-making		Self-efficacy		Personal: Analytical strategies	Personal goals	Past performance	Performance
Ozer & Bandura (1990)	Personal empowerment		Coping efficacy	Negative thoughts	Personal: Anxiety arousal		Past experience with physical and sexual assault	Frequency of participant and avoidant behaviour (this was a future-oriented dependent variable in the 2nd and 3rd assessment waves)
				Personal vulnerability	Personal: Self-protective skill development			
			Cognitive control efficacy	Risk estimate and discernment			Frequency of participant and avoidant behaviour	
Bandura & Jourden (1991)	Managerial decision-making		Self-efficacy	Affective self-evaluation	Personal: Analytical strategies	Personal goals	Past performance	Organisational performance
					Situational: Social comparison			
Zimmerman, Bandura & Martinez-Pons (1992)	Academic attainment		Self-efficacy for self-regulated learning		Situational: Parent grade goals	Student grade goals	Prior grades	Final grades
			Self-efficacy for academic achievement					
Zimmerman & Bandura (1994)	Writing course attainment		Self-regulatory efficacy for writing	Self-evaluative standards	Personal: Verbal aptitude	Grade goals		Final grades
			Self-efficacy for academic achievement					
Bandura, Barbaranelli, Caprara & Pastorelli (1996b)	Academic functioning	Moral disengagement	Children's academic self-efficacy	Academic aspirations: level of performance expectations	Personal: Depression	Academic aspirations: importance of academic attainments	Prosocial behaviour	Academic achievement
					Situational: Peer preference			
			Children's social self-efficacy		Situational: Parental and peer academic aspirations	Academic aspirations: anticipated educational level of completion	Problem behaviour	
					Situational: Parental academic efficacy			
			Children's self-regulatory efficacy		Sociostructural: Socioeconomic status			
Bandura, Pastorelli, Barbaranelli & Caprara (1999)	Childhood depression		Academic efficacy		Personal: Academic achievement		Prosocial behaviour	Depression at Time 2
			Social efficacy				Problem behaviour	
							Depression at Time 1	
Caprara, Barbaranelli, Pastorelli, Bandura & Zimbardo (2000)	Children's academic achievement				Situational: Peer social preference		Prosocial behaviour	Academic achievement
							Aggression	
							Early academic achievement	
Bandura, Barbaranelli, Caprara & Pastorelli (2001a)	Children's occupational choices		Children's academic efficacy	Academic aspirations	Personal: Academic achievement			Career choices
			Children's social efficacy		Situational: Parent's self-efficacy			
			Children's self-regulatory efficacy		Situational: Parent's academic aspirations			
			Perceived occupational efficacy		Sociostructural: Socioeconomic status			

PROSOCIAL BEHAVIOUR (continued)								
Author	**Theme**	**Moral disengagement**	**Self-efficacy**	**Outcome expectations**	**Facilitators & impediments**	**Intention**	**Behaviour**	
							Past	**Future**
Caprara, Pastorelli, Regalia, Scabini & Bandura (2005)	Quality of family functioning and satisfaction		Perceived filial self-efficacy		Situational: Open communication with parents Situational: Parental monitoring Situational: Escalative conflict		Family satisfaction at Time 1	Family satisfaction at Time 2
Caprara, Fida, Vecchione, Del Bove, Vecchio, Barbaranelli & Bandura (2008)	Academic continuance and achievement		Self-regulatory efficacy at Time 1, Time 2 and Time 4		Sociostructural: Socioeconomic status		Junior high school grades at Time 3	High school grades at Time 6 Drop out at Time 6
Bandura, Caprara, Barbaranelli, Regalia & Scabini (2011)	Quality of family functioning and family satisfaction (Parents)		Parental efficacy Spousal efficacy Collective efficacy		Situational: Open communication with parents Situational: Self-disclosure			Family satisfaction
	Quality of family functioning and family satisfaction (Adolescents)		Filial efficacy Collective efficacy		Personal: Gender Situational: Open communication with mother Situational: Open communication with father Situational: Self-disclosure			Family satisfaction

ANTISOCIAL BEHAVIOUR								
Author	**Theme**	**Moral disengagement**	**Self-efficacy**	**Outcome expectations**	**Facilitators & impediments**	**Intention**	**Behaviour**	
							Past	**Future**
Bandura, Barbaranelli, Caprara & Pastorelli (1996a)	Delinquent and aggressive behaviour	Moral disengagement		Guilt and restitution		Aggression proneness	Prosocial behaviour	Delinquent behaviour (dependant variable; actually past behaviour) Aggressive behaviour (dependant variable; actually past behaviour)
Caprara, Scabini, Barbaranelli, Pastorelli, Regalia & Bandura (1998)	Antisocial conduct		Perceived regulating self-efficacy		Situational: Open communication with parents Situational: Parental monitoring			Delinquency (dependant variable; actually past behaviour) Substance abuse (dependant variable; actually past behaviour)
Bandura, Caprara, Barbaranelli, Pastorelli & Regalia (2001b)	Transgressive behaviour	Moral disengagement	Academic efficacy Social efficacy Self-regulatory efficacy			Ruminative affectivity	Prosocial behaviour Transgressive behaviour at Time 1	Transgressive behaviour at Time 2
Caprara, Regalia & Bandura (2002)	Violent conduct		Perceived self-regulatory efficacy		Situational: Communication with parents		Violent conduct at Time 1	Violent conduct at Time 2
Bandura, Caprara, Barbaranelli, Gerbino & Pastorelli (2003)	Depression, delinquent conduct and prosocial behaviour		Academic efficacy Self-regulatory efficacy Empathic efficacy				Depression at Time 1 Delinquency at Time 1 Prosocial behaviour at Time 1	Depression at Time 2 Delinquency at Time 2 Prosocial behaviour at Time 2
McAlister, Bandura & Owen (2006)	Military force in response to terrorism	Moral justification Minimising consequences Non-responsibility Dehumanisation			Sociostructural: Sociodemographic factors Sociostructural: Terrorist attack			Military force

A second inconsistency highlighted in the table was the use of different permutations of social cognitive constructs (as opposed to standardised sets) to predict either prosocial or antisocial behaviour. For the purpose of elaborating on this point all the studies in the prosocial category were compared with each other but not with those in the antisocial category. Similarly all the studies in the antisocial category were compared with each other but not with those in the prosocial category. A notable trend was the inclusion of constructs in some studies but not others with no clear rationale for why it was important for them to have been included in some cases and excluded in others. For example, while self-efficacy featured as a predictor of prosocial behaviour in thirteen studies, it was excluded from the fourteenth and while it was included as a predictor of antisocial behaviour in four studies, it was excluded from two. Similar trends were noted for the other social cognitive variables. This seemingly random inclusion or exclusion of constructs from the empirically tested structural models emphasised that social cognitive theory was not consistently applied either to predict specific instances of prosocial behaviour or to explain specific instances of antisocial behaviour. This raised concerns about whether social cognitive theory could appropriately be consistently applied with a standardised set of constituent components or if it was the kind of theoretical framework that was so sensitive to the specificities of the contexts in which it was used that it took on different forms each time drawing on some predictors but not on others depending on the requirements of the situation.

The possibility that the constituent components of structural models for predicting antisocial behaviour would differ from those of their counterparts for explaining prosocial behaviour, by virtue of the unique activation of moral disengagement in antisocial contexts, was introduced earlier. A comparison of the empirical studies aimed at explaining instances of prosocial behaviour with those geared towards predicting antisocial behaviour revealed that the moral disengagement construct was unique to the latter set, with one odd exception. Bandura et al. (1996b) included moral disengagement as a predictor in a structural model for explaining children's academic functioning. At first glance it appeared that the rule of the unique activation of moral disengagement in antisocial contexts only had been violated. However, a closer inspection of this structural model revealed that moral disengagement was, in fact, envisaged as a predictor of past problem behaviour rather than of children's academic functioning. The direct causal link between moral disengagement and children's problematic behaviour as a specific instance of antisocial behaviour and the causal abstraction between moral disengagement and children's academic functioning as a specific instance of prosocial behaviour highlighted that even in this study, moral disengagement was used to predict a past antisocial behaviour rather

than the ultimate prosocial dependent variable. It was expected, therefore, that moral disengagement would feature as a unique predictor in all the empirical studies geared towards explaining antisocial behaviour. However, a review of these studies in Table 2.1 revealed that it featured in only three of six studies. In the remaining three, perceived self-regulatory efficacy was consistently present seeming to compensate for moral disengagement's absence. This suggested a potentially important relationship between moral disengagement and self-regulatory efficacy in antisocial contexts which will be explored in more detail later in this chapter.

The table revealed a third fundamental inconsistency in the manner in which constructs were operationalised across the empirical studies. Once again, for the purpose of exploring this point all the studies in the prosocial category were compared with each other but not with those in the antisocial category and vice versa. This comparative analysis revealed discrepancies in the way self-efficacy, facilitators and impediments and moral disengagement were operationalised. In some instances they were characterised as singular constructs but at other times they were treated as multi-faceted. While this inconsistent treatment could have been a function of Bandura's (and his collaborators) uncertainty about whether these constructs were uni-dimensional or multi-dimensional, it could also have been a function of practical data collection, research design or statistical analysis realities. Unfortunately, Bandura and his colleagues did not offer a clear rationale for why they sometimes operationalised self-efficacy, facilitators and impediments and moral disengagement as uni-dimensional and why they sometimes treated them as multi-dimensional. Beyond this, they were also not clear about why, when self-efficacy and facilitators and impediments, in particular, were defined as multi-dimensional, there was inconsistency about what their actual composite components were. For example, in two separate studies, both aimed at explaining academic performance, self-efficacy was inconsistently operationalised first as a two-dimensional construct represented by the composite components of self-efficacy for self-regulated learning and self-efficacy for academic achievement (Zimmerman et al., 1992) and then as a three-dimensional construct represented by the composite components of academic self-efficacy, social self-efficacy and self-regulatory efficacy (Bandura et al., 1996b). This raised doubts about the structural properties of self-efficacy. Was it consistently a two-dimensional construct or a three-dimensional construct or could it consist of any number of dimensions depending on the relevant domains for which self-efficacy was deemed appropriate in the specific contexts in which it was leveraged as a predictor of human behaviour? In the studies aimed at predicting antisocial behaviour, moral disengagement was operationalised as a one-dimensional construct and as a four-dimensional construct. In this case, the four-dimensional

conceptualisation had its roots in Bandura's (1986) theoretical presentation of moral disengagement as an eight-factor construct which could be abstracted to a four-dimensional one based on the four points in the self-regulation process at which it was likely to be activated. Once again, this raised doubts about the factor structure of moral disengagement. The lack of clarity surrounding the dimensionality of moral disengagement will be elaborated on later in this chapter. Suffice it to say at this point that the absence of a clear answer about whether the social cognitive constructs in question were consistently uni-dimensional or multi-dimensional and, if they were multi-dimensional, if they consistently consisted of the same number of composite components, rendered it difficult if not impossible to compare structural models of social cognitive theory in which these constructs were differentially operationalised with each other, detracting from the overall generalisability of the theoretical framework.

Thus, the author was essentially left with the task of linking the components of the structural models tested in these empirical studies back to a standardised set of constructs through which social cognitive theory could be commonly understood. In addition, Bandura and his colleagues did not use standardised sets of social cognitive constructs as the constituent components of models aimed at predicting specific instances of prosocial and antisocial behaviour respectively; and the same social cognitive constructs were not consistently operationalised across different empirical studies within each category (prosocial behaviour and antisocial behaviour). Taken together these inconsistencies implied either that at a very fundamental level, Bandura and his associates may have been unclear about what constituted a standardised set of constituent components or that they did not believe it was important to leverage social cognitive theory as a consistent, standardised and generalisable theoretical framework in their empirical research. This raised an interesting question. Did Bandura (1986) originally intend for social cognitive theory to be a standardised theoretical framework that could be consistently applied to explain a wide spectrum of human behaviour or did he envisage it as a context-specific paradigm that was meant to be uniquely applied each time it was used to make sense of human behaviour, taking into account the richness of the specific contexts in which the behaviour was enacted? Unfortunately, there is no clear answer to this question. Bandura's (1986) initial failure to commit to a standardised set of constructs that in his estimation would consistently serve as the predictors of social cognitive theory seemed to favour the interpretation of it as a context-specific framework that would be differentially operationalised each time it was used. However, Bandura's (2000; 2004a) later conceptual efforts to produce a consistent structural model for explaining prosocial behaviour appeared to support the interpretation of social cognitive theory as a standardised

theoretical framework that was intended to be consistently applied to explain a diverse spectrum of human behaviour.

The empirical research presented in Table 2.1 yielded an array of structural models for explaining different antisocial and prosocial phenomena, each consisting of unique combinations of constructs (with the exception of some studies reporting on the managerial decision-making model). While there was overlap between models oriented towards explaining different phenomena in terms of their constituent components, no perfectly consistent models were identified which suggested that no standardised, generalisable models of social cognitive theory had been produced to explain more than one type of behaviour. This diminished its empirical testability as a uniform theoretical framework for explaining and predicting the full spectrum of human behaviour. If the basic building blocks of a theory and the nature of the associations between them were open to interpretation, as was the case with social cognitive theory, then empirically assessing its worth and utility as a tenable, coherent, unified and generalisable theoretical framework was likely to prove challenging.

In spite of the inconsistencies and the lack of a common, standardised model for explaining different types of prosocial and antisocial behaviour respectively, Table 2.1 yielded an overarching set of generic constructs that could be used to operationalise social cognitive theory either for explaining prosocial behaviour or antisocial behaviour. Self-efficacy, outcome expectations, facilitators and impediments (personal, situational and sociostructural; instead of just sociostructural facilitators and impediments as was the case in the conceptual models for predicting prosocial behaviour), intention and behaviour were the likely contenders for the basic building blocks of structural models for predicting prosocial behaviour and this set of constructs augmented by moral disengagement comprised the likely constituent components of structural models for predicting antisocial behaviour. In the author's opinion the use of these generic sets of constructs for predicting specific instances of behaviour in each category could considerably extend the utility of the theory by enhancing its generalisability and facilitating its comparability across a diverse range of contexts. These generic building blocks of social cognitive theory will be defined in the next section.

2.3.1.2 Defining the constituent components of social cognitive theory

Starting with the unique moral disengagement construct for predicting antisocial behaviour and then moving onto the generic social cognitive constructs relevant for predicting both prosocial and antisocial behaviour, this discussion will focus on how each construct was defined in the context of social cognitive theory. Interestingly, the constituent components of social cognitive theory shared many similarities with the building blocks of other alternate popular theoretical paradigms for predicting human behaviour (viz. theory of reasoned action, theory of planned behaviour and theory of interpersonal behaviour) in the social psychological domain. These will be explored in depth in the discussion below in an attempt to offer a comprehensive coverage of each predictor of human behaviour. As a prelude to this exploration, a brief consideration of the main similarities and differences between social cognitive theory and the theories of reasoned action, planned behaviour and interpersonal behaviour will be presented.

The theory of reasoned action was premised on the assumption that behaviour was under the complete volitional control of the actor performing it (Ajzen, 1991; Armitage & Conner, 2001; Ajzen, 2002). Therefore, its predictors centred on factors that originated within and were within the sphere of influence of the actor such as attitudes, subjective norms and intention. It was consistent with the theory of reasoned action, therefore, that contextual factors, which were not under the volitional control of the actor, were excluded as predictors. However, behaviour is the outcome of a complex interaction of factors both within and external to the actor and it seemed somewhat unrealistic, even when attempting to explain the simplest behaviours, that external, contextual factors would not play a determining role. This fundamental criticism of the theory of reasoned action (Fishbein & Ajzen, 1975) served as a catalyst for its extension and evolution into the theory of planned behaviour (Ajzen, 1991). Perceived behavioural control was added to the original set of theory of reasoned action constructs of attitudes, subjective norms and intention to constitute the theory of planned behaviour (Ajzen, 1991). Its inclusion allowed for the prediction of behaviours that were not under the complete volitional control of the actor (Armitage & Conner, 2001). Ajzen (2002) was clear that although this construct was unique to the theory of planned behaviour when compared to the theory of reasoned action, it was not an entirely new or original predictor of human behaviour, having featured previously in social cognitive theory as self-efficacy (Bandura, 1986) and as facilitating conditions in the theory of interpersonal behaviour (Triandis, 1977).

The acknowledgement that behaviour was not simply a function of factors residing within the individual lay at the heart of one of social cognitive theory's major contributions to the field of social psychology, namely a recognition of the "social" (extra-individual factors) in addition to the "cognitive" (intra-individual factors) in the prediction of human behaviour. Social cognitive theory firmly embedded individuals in the contexts in which they functioned and recognised the complex interplay of personal factors, the environment and behaviour in the determination of human motivation, thought and action (Bandura, 1986). The facilitators and impediments construct explicitly accommodated objective situational and contextual factors as the extra-individual or external facilitating or impeding determinants of behaviour alongside personal objective factors such as knowledge, skills, abilities, experience, emotional states and the like as intra-individual promoters or inhibiters of behaviour. Bandura's (1986) conceptualisation of the facilitators and impediments construct seemed to share considerable similarities with Triandis' (1977) notion of facilitating conditions. Through their inclusion of facilitators and impediments and facilitating conditions, social cognitive theory and the theory of interpersonal behaviour explicitly incorporated the contexts in which individuals operated as a key determinant of human behaviour. It was mentioned earlier that Ajzen (2002) likened the facilitating conditions construct in the theory of interpersonal behaviour to the self-efficacy construct in social cognitive theory. However, the author has proposed an alternate view which suggested more similarities between facilitating conditions and social cognitive theory's facilitators and impediments than between facilitating conditions and social cognitive theory's self-efficacy. The rationale behind this alternate conceptualisation is that while facilitating conditions and facilitators and impediments both included objective personal (intra-individual) and contextual (external) factors as determinants of human behaviour, self-efficacy constituted a subjective assessment of one's capabilities to enact specific behavioural performances. Thus, in the author's view, facilitating conditions was intrinsically different from self-efficacy because the former represented an example of a set of objective factors as determinants of behaviour while the latter represented an example of a subjective factor as a predictor of behaviour. This will be revisited in the discussion about the individual social cognitive predictors below.

Earlier, social cognitive theory was criticised for not distinguishing between the constructs that were relevant for predicting prosocial behaviour from those that were appropriate for explaining antisocial behaviour. However, despite this oversight, Bandura (1986) made explicit provisions for predicting instances of antisocial behaviour through the self-regulation mechanism and the selective activation of moral disengagement in situations where individuals' internal standards

were incongruent with the detrimental consequences of the behaviour they opted to engage in. The theories of reasoned action and planned behaviour, in contrast, did not intrinsically include constructs that explicitly catered for the prediction of antisocial behaviour. This implied that when these frameworks were used in their original formats to explain antisocial behaviour they did not appear to include the full complement of relevant constructs because, unlike social cognitive theory, they did not cater for self-regulation or moral disengagement, which cast doubt on their overall utility. When attempts were made to address this shortcoming by tacking on a construct with a moral element to the other theoretical predictors in the theory of planned behaviour to facilitate the prediction of antisocial behaviour, this fundamentally altered the nature of the theoretical framework and resulted in a situation in which the additional construct was not integrated into the theoretical fabric of the paradigm (Beck & Ajzen, 1991; Cronan & Al-Rafee, 2008). In the next chapter, these specific attempts at tacking on a construct with a moral element to the theory of planned behaviour to render it capable of explaining software piracy as a specific instance of antisocial behaviour will be explored in detail. Like social cognitive theory, the theory of interpersonal behaviour acknowledged self-regulation as a process individuals undertook to justify engaging in behaviours that deviated from their internal sense of what was essentially right (Triandis, 1977). However, unlike social cognitive theory, the theory of interpersonal behaviour did not cater for a complex construct similar to moral disengagement to understand the specific rationalisations individuals used to make sense of their antisocial behaviour. Thus, moral disengagement was unique to social cognitive theory for predicting antisocial conduct.

The preceding discussion touched on important overlaps between social cognitive theory and the theories of reasoned action, planned behaviour and interpersonal behaviour. While this coverage was not exhaustive, it highlighted that the constituent components of social cognitive theory shared important similarities with related or identical constructs in the other social psychological theories of human behaviour. Therefore, when the building blocks of social cognitive theory are defined in the next section, the author will, whenever appropriate, point out relevant similarities or differences with their counterparts in the other theoretical paradigms to offer a more complete treatment of each construct. As stated earlier, the discussion will commence with a definition of moral disengagement, social cognitive theory's unique contribution to the explanation of antisocial behaviour in the social psychological domain.

(a) Moral disengagement

Internal standards of behaviour are an integral part of being human and inform our unique individual identities and our approaches to the world. Personal standards serve as the yardstick against which we evaluate our thoughts, intentions and actions using the self-reactive influence sub-function of self-regulation to assess the degree of congruence between internal standards and intended or actual behaviour. In general, human beings strive to engage in behaviours that produce positive self-reactions and refrain from behaviours that lead to self-disapproval. Thus, once internal standards have been adopted individuals self-regulate their behaviour to exclude reprehensible acts by invoking anticipatory self-condemnation during contemplations of violating personal standards. Traditionally, self-deterrence is activated when there is a clear causal relationship between reprehensible behaviour and its detrimental consequences. However, when this link is ambiguous or masked, human beings could employ various strategies via which self-evaluative reactions could be dissociated from reprehensible behaviour. These involve selective activation or disengagement from the internal moral standards that govern behaviour to justify reprehensible behaviours that traditionally produce destructive consequences in order to render them palatable and in the service of honourable ends (Bandura, 1986).

Human behaviour is regulated by external (e.g. social and legal) and internal (self-evaluative reactions) sanctions (Bandura, 1986; Kuo & Hsu, 2001). According to Bandura (1986) the former are relatively weak deterrents and the latter play a more influential role in the self-regulation of behaviour. When individuals choose to override the influence of their internal self-sanctions due to favourable outcome expectations and facilitating factors operating in their contexts, they distance themselves from the reprehensible consequences of their behaviour through moral disengagement. Bandura (1991a) identified eight mechanisms of moral disengagement through which individuals could justify behaviour that deviated from their own internal standards to render it morally acceptable to themselves. These are described in Table 2.2.

Bandura (1986) clustered the eight mechanisms of moral disengagement into four groups corresponding to the four major points or loci in the self-regulatory process at which internal moral control could be disengaged from moral conduct. In relation to the reprehensible behaviour itself (behaviour locus) the disengagement mechanisms of moral justification, advantageous comparison and euphemistic labelling were relevant (Bandura, 1986; Caprara et al., 2009).

Table 2.2: Bandura's (1986) mechanisms of moral disengagement

Moral disengagement mechanism	Description
Moral justification	*Moral justification* involves the justification of morally reprehensible conduct to oneself through a process of cognitive restructuring to render the otherwise injurious conduct personally and socially acceptable and in the service of good and moral ends. It is based on the premise that people typically do not engage in harmful conduct until they have justified the morality of their actions to themselves (Bandura, 1986; 1991a).
Euphemistic labelling	*Euphemistic labelling* is a device for disguising reprehensible conduct and attributing respectable status to it through the use of sanitising labels thereby rendering it benign and relieving those engaging in it of a sense of personal agency (Bandura, 1986; 1990a).
Advantageous comparison	*Advantageous comparison* involves the contrasting of reprehensible acts against flagrant inhumanities to render them self-righteous and benevolent (Bandura, 1986; 2004c).
Displacement of responsibility	The *displacement of responsibility* mechanism operates by distorting the relationship between actions and the effects they produce. People are likely to behave in ways that they would ordinarily renounce if they perceive that a legitimate authority accepts responsibility for the consequences of their conduct (Bandura, 1986; 1990b). When this mechanism of moral disengagement is invoked people do not take personal responsibility for their reprehensible conduct but displace responsibility onto the legitimate authority of choice.
Diffusion of responsibility	The relationship between reprehensible actions and their consequences becomes obscured through *diffusion of responsibility* when tasks, decisions and actions are sub-divided among many individuals to the extent that each person does not feel personally responsible for the consequences of those tasks, decisions and actions. Responsibility can be diffused in three ways: division of labour, group decision-making and collective action (Bandura, 1986; Osofsky et al., 2005). The premise underlying this mechanism is that when everyone is perceived to be responsible no one person can be blamed.
Disregarding, distorting or minimising of consequences	*Disregarding, distorting or minimising of consequences* is especially likely to be invoked as a mechanism of moral disengagement when people act alone and cannot easily escape personal responsibility for behaviour that causes harm to others. In these instances they tend to emphasise the benefits of their actions and downplay their harmful effects (Bandura, 1986; 2002).
Attribution of blame	*Attribution of blame* is the mechanism through which victims are blamed for the suffering brought on by the actions of perpetrators. It is invoked when perpetrators view their reprehensible behaviour as being forced by circumstances and the very people who are the targets of their injurious conduct than by their own freely determined personal choices (Bandura, 1986; 2004b).
Dehumanisation	*Dehumanisation* is the mechanism through which self-sanctions against the mistreatment of people are disengaged by stripping them of human qualities. Once dehumanised they are no longer regarded as people who deserve to be treated with respect, dignity and empathy but as sub-human objects or beasts (Bandura, 1986; 2002).

The displacement and diffusion of responsibility (agency locus) mechanisms were activated when the relationship between reprehensible actions and the effects they caused were obscured or distorted (Bandura, 1986; Caprara et al., 2009). The third point at which moral disengagement could occur (outcome locus) was in relation to the consequences of reprehensible acts. The manner in which self-deterring reactions were weakened in this context was through the minimisation, ignoring or misconstrual of the consequences of reprehensible actions (Bandura, 1986; Caprara et al., 2009). The final set of moral disengagement mechanisms occurred at the point of the consequences experienced by the recipients or victims of reprehensible deeds (recipient locus) and was classified as dehumanisation and attribution of blame in social cognitive terms (Bandura, 1986; Caprara et al., 2009). The mechanisms of moral disengagement and the points in the self-regulatory process at which they were likely to be activated are graphically depicted in Figure 2.2.

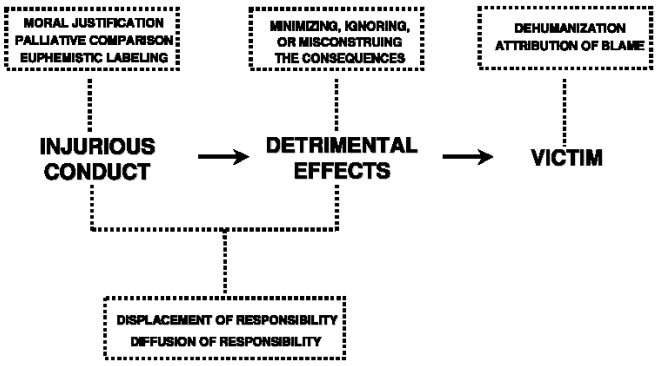


Figure 2.2: Mechanisms through which moral self-sanctions are selectively disengaged from injurious conduct at different points in the self-regulatory process (taken directly from Osofsky et al., 2005, p. 372)

In this review, moral disengagement was interpreted as a direct outcome of affective disequilibrium arising from the self-reactive influence sub-function of the self-regulation process. The selective activation of, or disengagement from, internal standards was exclusive to antisocial contexts. Therefore, by proposing moral disengagement as a predictor of human behaviour, social cognitive theory explicitly catered for the prediction of antisocial conduct. Bandura's (1986) portrayal of the moral disengagement mechanisms as embedded within the broader self-regulation process was a distinctive characteristic of social cognitive theory which was unparalleled when compared to the theories of reasoned action, planned behaviour and interpersonal behaviour. The theories of reasoned action (Fishbein & Ajzen, 1975) and planned behaviour (Ajzen, 1991) did not explicitly cater for the process of self-regulation nor did they make specific provisions for a construct similar to moral disengagement through which individuals could rationalise behaviour that deviated from their personal standards to render it morally palatable to themselves. Consequently, when constructs with a 'moral flavour' were incorporated into these theoretical frameworks to predict transgressive behaviour, for example, when the moral obligation construct was added to the baseline constructs of the theory of planned behaviour (Beck & Ajzen, 1991; Cronan & Al-Rafee, 2008), they necessarily were tacked on, so unlike moral disengagement in social cognitive theory, they were not woven into the theoretical fabric of the frameworks to which they were appended.

The theory of interpersonal behaviour recognised the self-regulatory system as a determinant of human behaviour through which individuals regulated their own actions through self-imposed standards and self-produced rewards and punishments (Triandis, 1977). Self-monitoring, which was defined as "self-observation and self-control guided by situational cues to social

appropriateness" (Triandis, 1977; p.14), was cited as one process through which self-regulation occurred. Individuals engaged in self-monitoring to ensure congruence between their outwardly expressed behaviour and their internal emotional states (Triandis, 1977). The notion of self-monitoring seemed to closely resemble Bandura's (1986) notion of self-reactive influence, one of three sub-processes involved in the self-regulation of behaviour through internal standards and self-bestowed incentives (the other two sub-processes were self-observation and the judgemental process). Self-reactive influence was achieved through the creation of incentives for one's actions and by responding evaluatively to one's own behaviour based on the extent to which it measured up to an internal standard. In the same way that evaluative self-incentives were leveraged to regulate (i.e. facilitate and sustain) behaviours that relied on personal competence, evaluative self-sanctions were leveraged in the self-regulation of behaviours that fell into the moral domain. Individuals tended to pursue courses of action that elicited positive self-reactions (i.e. were congruent with their internal standards) and avoided behaving in ways that induced self-condemnation (i.e. deviated from their internal standards). Thus, once social and moral standards had been adopted and internalised, when individuals contemplated behavioural choices that were in violation of these internal standards, anticipatory self-disapproval served as a self-deterrent which discouraged them from engaging in reprehensible behaviour. Individuals actively avoided enacting behaviour that produced self-devaluative consequences and opted instead to behave in ways that promoted self-satisfaction and enhanced self-esteem (Bandura, 1986). Bandura (1986) theorised that self-deterrence was likely to be most strongly activated when the causal connection between injurious behaviour and its detrimental effects were unambiguous. However, he recognised that there was a set of mechanisms individuals could leverage to obscure the causal connection between their reprehensible behaviour and its negative consequences. This was labelled moral disengagement and was Bandura's (1986) unique extension to the notion of self-regulation of behaviour in the moral domain which did not feature in the theory of interpersonal behaviour (Triandis, 1977). The sum total of Triandis' (1977) attempt to operationalise self-monitoring as a determinant of moral behaviour was a solitary item tapping into moral obligation in an example questionnaire with no clear definition of moral obligation, how to operationalise it or the conditions under which it would serve as a determinant of behaviour. Thus, moral disengagement was unique to antisocial contexts and to social cognitive theory (when compared with the theories of reasoned action, planned behaviour and interpersonal behaviour) in which it was conceptualised as an integral part of the theoretical framework rather than as an afterthought necessitated by an incomplete conceptualisation of the predictors of antisocial behaviour.

(i) *A comparison of moral disengagement with similar sociological and psychological constructs*

While the theories of reasoned action, planned behaviour and interpersonal behaviour did not intrinsically possess similar constructs that overlapped with social cognitive theory's moral disengagement, a review of Sykes and Matza's (1957) techniques of neutralisation, Festinger's (1957) notion of cognitive dissonance and Milgram's (1974) notion of obedience to authority suggested clear similarities with Bandura's (1986) concept of moral disengagement. In the discussion that follows a comparison of moral disengagement and these related sociological and psychological concepts will be undertaken. Bandura (1986) pitched the concept of moral disengagement and its eight mechanisms as a unique contribution made by social cognitive theory to understanding and predicting antisocial behaviour and did not acknowledge the striking resemblance between his mechanisms of moral disengagement and Sykes and Matza's (1957) techniques of neutralisation which they contextualised in a theory of delinquency (Cahill, 1987). Sykes and Matza (1957) proposed the techniques of neutralisation as mechanisms via which individuals could escape moral culpability for criminal behaviour by rationalising their actions. In their conceptualisation these justifications could be invoked immediately after deviant behaviour in order to protect individuals from self-blame and blame from others or it could precede deviant behaviour to render such behaviour possible (Sykes & Matza, 1957). Thus, Bandura's (1986) notion of moral disengagement situated in the self-regulation process within social cognitive theory was not the first theoretical attempt to explain the rationalisation of deviance and antisocial conduct.

In a later paper (Osofsky et al., 2005) it was acknowledged that the techniques of neutralisation (Sykes and Matza, 1957) included some of the mechanisms of moral disengagement (Bandura, 1986), but that moral disengagement was fundamentally different because it was rooted in the social cognitive theory of moral agency and was enacted within the broader self-regulatory process while the techniques of neutralisation were simply a collection of tools delinquents could draw on to mitigate guilt (Osofsky, et al., 2005) and were not integrated into or situated within a theoretical framework. Another key difference was that the original techniques of neutralisation were formulated to understand ways in which young offenders (delinquents) attempted to justify their often rebellious antisocial behaviour which explained the preoccupation with authority figures in the form of parents, teachers and the police in the rationalisations used. Bandura's (1986) mechanisms of moral disengagement, on the other hand, were not pitched at individuals from a specific age group and were intended to be generalisable not only across the age spectrum

but across a range of classifications and categorisations to represent all human beings. Thus, the acknowledgement of symbols of authority in the context of these mechanisms was more generic and universal taking broader and more abstract forms which facilitated the application of social cognitive theory to a wide range of contexts. An acknowledgement of these conceptual differences between Bandura's (1986) mechanisms of moral disengagement and Sykes and Matza's (1957) techniques of neutralisation and the parallels between them precipitated an exploration of the extent to which they overlapped, the unique aspects within each set of mechanisms rendering them useful in their own right, and the extent to which each set of mechanisms could be augmented by the novelties inherent in the other to enhance their range, depth, explanatory potential and overall utility.

Sykes and Matza (1957) originally identified five techniques of neutralisation which corresponded and overlapped with Bandura's (1986) eight mechanisms of moral disengagement to varying degrees. The first was *denial of responsibility* which occurred when the delinquent engaged in criminal behaviour but regarded it from the perspective of an external locus of responsibility culminating in a lack of personal accountability, a sense of helplessness and feeling a loss of control as situations were perceived to conspire against the individual (Sykes & Matza, 1957). This technique of neutralisation portrayed the delinquent as a helpless victim of his/her circumstances. The central tenets of social cognitive theory which postulated that individuals were both products and producers of their environments with agentic capabilities stood in opposition to the uni-dimensional view of individuals being victims of their circumstances. Therefore, there were no mechanisms of moral disengagement which overlapped exactly with it. Bandura's (1986) displacement of responsibility which operated at the agency locus and served to relieve individuals of a sense of personal accountability (McAlister et al., 2006) probably came closest because it too implied an external locus of responsibility but with one fundamental difference. A legitimate authority was perceived to sanction injurious behaviour and to accept accountability for individuals' heinous actions in the case of displacement of responsibility whereas in the case of denial of responsibility individuals rid themselves of a sense of responsibility by blaming external parties for their injurious conduct and there was no legitimate authority involved in sanctioning their antisocial behaviour.

The second technique of neutralisation was *denial of injury* which was invoked when the delinquent felt that his/her antisocial behaviour did not cause significant harm even though it violated the law and when he/she used bland language to reconstrue antisocial conduct in a more

benign light, for example, regarding theft as borrowing (Sykes & Matza, 1957). This overlapped with two of Bandura's (1986) mechanisms of moral disengagement; minimising or disregarding of the harmful consequences of one's actions located in the outcome locus and euphemistic labelling situated in the behaviour locus (McAlister et al., 2006; Osofsky et al., 2005). While Bandura (1986) did not conceptually link the mechanisms of moral disengagement situated in the behaviour locus with the mechanism located in the outcome locus, the denial of injury technique of neutralisation illustrated the potential of grouping these mechanisms together. This served as a catalyst to re-evaluate the mechanisms of moral disengagement to understand other ways in which they could be grouped to render alternative meaningful interpretations in addition to the 'four points in the self-regulation process' categorisation proposed by Bandura (1986). Alternative conceptualisations of moral disengagement will be explored in detail later in the research questions chapter.

Sykes and Matza's (1957) third technique of neutralisation was the *denial of the victim* which was activated when the delinquent reconstrued him/herself as the person who had been wronged by the objective victim who then became the transgressor from the delinquent's point of view, and when the delinquent engaged in deviant actions against others based on a diminished awareness of the victim's existence. This corresponded with Bandura's (1986) attribution of blame mechanism operating at the locus of recipients (Osofsky et al., 2005). The fourth technique of neutralisation proposed by Sykes and Matza (1957) was the *condemnation of the condemners* which was activated when the delinquent rationalised his/her deviant behaviour by deflecting attention away from its harmful consequences in favour of attacking and discrediting the motives and behaviour of third-party entities who disapproved of these violations. When these external third parties were the victims of the antisocial behaviour, this technique of neutralisation corresponded exactly with Bandura's attribution of blame mechanism of moral disengagement situated in the recipient locus. However, the definition of external parties in this technique of neutralisation was broader than just the victims of antisocial behaviour and extended to parties with the authority and discretion (for example, parents, teachers and the police) to sanction and evaluate individuals' behavioural choices. In the context of this broader definition there did not appear to be an exact mapping of this technique to any of Bandura's (1986) mechanisms of moral disengagement apart from an element of moral justification as the delinquent justified his/her deviance in response to hypocritical or unfair treatment from the external parties who denounced this deviance. The novel element was the deflection of attention away from the injurious behaviour onto third-party entities who disapproved thereby attempting to downplay detrimental

conduct by drawing attention to aspects of unfairness and hypocrisy in third-party disapprovers' responses. By "changing the topic" so to speak, the wrongfulness of one's own behaviour was deflected, repressed and obscured from full view. The fifth and final technique of neutralisation was the *appeal to higher loyalties* which was activated when the delinquent offered precedence to loyalties to family, friends, gang members and other members of their in-group at the expense of abiding by the law or the normative social system (Sykes & Matza, 1957). This overlapped with Bandura's (1986) moral justification mechanism of moral disengagement. Notably, none of Sykes and Matza's (1957) techniques of neutralisation corresponded with Bandura's (1986) concept of dehumanisation rendering this mechanism unique to the mechanisms of moral disengagement.

In addition to Sykes and Matza's (1957) five original techniques of neutralisation introduced in their seminal paper, Hinduja (2007) cited four other rationalisations proposed by scholars between 1974 and 1990. Klockars (1974) (cited in Hinduja, 2007) and Minor (1980) (cited in Hinduja, 2007) introduced the *metaphor of the ledger* which weighed individuals good deeds against their bad ones to reveal that they were on the whole decent which, therefore, excused them for their current transgressions. This also seems to have corresponded with Bandura's (1986) mechanism of moral justification. Henry (1990) (cited in Hinduja, 2007) added the *claim of normalcy*, *denial of negative intent* and *claim of relative acceptability* to Sykes and Matza's (1957) five original neutralisation techniques. In the claim of normalcy, wrongs were rationalised by pointing out how prevalent they were and how many other people were engaging in the same behaviour culminating in the argument that it could not possibly be deviant as a result. In Bandura's (1986) terms, this constituted a classic case of diffusion of responsibility. The denial of negative intent appeared to share similar characteristics with Sykes and Matza's (1957) denial of injury with the exception that the former was a rationalisation of the intention which preceded the behaviour and the latter was a rationalisation of the behaviour itself. The denial of negative intent also corresponded with Bandura's (1986) minimisation of consequences and euphemistic labelling in the same way that denial of responsibility did. The claim of relative acceptability was based on the comparison of reprehensible acts with considerably more reprehensible ones to dilute their negative consequences (Hinduja, 2007). This technique of neutralisation mapped directly to Bandura's (1986) moral disengagement mechanism of advantageous comparison.

Bandura's (1986) eight mechanisms of moral disengagement generally corresponded to the original set of techniques of neutralisation proposed by Sykes and Matza (1957) with two significant additions. There were no equivalent techniques of neutralisation for dehumanisation

which existed in the recipient locus and for advantageous comparison which formed part of the behaviour locus in Bandura's (1986) conceptualisation. The later addition of the claim of relative acceptability (which mapped onto advantageous comparison) by Henry (1990) cited in Hinduja (2007) acknowledged one of the gaps in the original set of neutralisation techniques. However, Bandura's (1986) dehumanisation mechanism remained unique, with no identical or even partial corresponding equivalent in the techniques of neutralisation. Similarly, the novel elements in the denial of responsibility and the condemnation of the condemners components were unique to the techniques of neutralisation and did not overlap exactly with any aspects encompassed within Bandura's (1986) mechanisms of moral disengagement. Specifically, the absence of a legitimate authority to sanction antisocial behaviour in the denial of responsibility technique of neutralisation prevented a complete overlap with the displacement of responsibility mechanism of moral disengagement situated in the agency locus. The deflection of attention away from antisocial behaviour by attacking and discrediting the motives and behaviour of external third parties, who were not the victims or targets of the antisocial conduct but who were blamed for the perpetration of the injurious behaviour because of their unfairness and hypocrisy in the condemnation of the condemners technique of neutralisation, prevented a complete overlap with the more narrowly defined attribution of blame mechanism of moral disengagement situated in the recipient locus. Notwithstanding these unique aspects, overall the range of coverage of the mechanisms of moral disengagement appeared to coincide with the techniques of neutralisation insofar as they both contributed content that mapped onto the four points in the self-regulation process (behaviour locus, agency locus, outcome locus and recipient locus) at which Bandura (1986) envisaged internal control could be selectively activated or disengaged and were thus, comparable in their scope.

The mechanisms of moral disengagement (Bandura, 1986) and the techniques of neutralisation (Sykes & Matza, 1957; Hinduja, 2007) were probably two of the most comprehensive attempts in the literature aimed at understanding the strategies individuals employed to maintain cognitive and affective congruence when they contemplated and enacted behavioural alternatives that were in direct conflict with their internal moral standards. Milgram's (1974) experimental work on obedience to authority was narrower in its focus but seemed to share some conceptual similarities with the notion of moral disengagement. It aimed to understand when and how individuals would renounce direction from a legitimate authority to uphold a moral imperative that they personally valued. In a surprising outcome, Milgram (1974) found that individuals were prepared to go to almost any lengths at the behest of a legitimate authority and that their desire to appease the

authority figure overrode any moral conflicts they may have encountered in the process of perpetrating harmful behaviour against defenceless individuals. Binding factors that locked individuals into the situation (e.g. politeness, a sense of obligation to the experimenter based on the initial promise to assist, a feeling of awkwardness preventing withdrawal from the experiment) and adjustments in the individuals' thinking that undermined their resolve to break away from the authority were identified as two overarching reasons individuals continued to obey the experimenter. A review of the specific ways in which individuals adjusted their thinking to align themselves with the authority figure and to reconcile the conflict they experienced from being instructed by a legitimate authority to behave in a way they perceived as morally reprehensible revealed a common thread: the notable absence of a sense of responsibility (Milgram, 1974). Individuals tended to use two strategies to bring about these adjustments or shifts in their thinking. The first strategy involved individuals locking themselves into a position of subordination in relation to the legitimate authority. They attributed all initiative and responsibility to the external authority and perceived themselves as devoid of moral accountability for actions they undertook as agents acting on behalf of the authority. The second strategy involved individuals' recognition of themselves as intermediaries in a chain of events. They distanced themselves from the ultimate consequences of their actions which rendered it easier to absolve themselves of responsibility for their small parts in grander sequences of injurious behaviour (Milgram, 1974).

The strategies for rationalising reprehensible behaviour emanating from Milgram's (1974) obedience to authority work appeared to coincide exactly with Bandura's (1986) displacement and diffusion of responsibility mechanisms of moral disengagement situated in the agency locus at the point between behaviour and its consequences in the self-regulation process. The common thread running through these strategies and mechanisms was that they all tended to externalise responsibility (implying an external locus of responsibility) for reprehensible behaviour by attributing responsibility to external sources such as legitimate authority figures, institutions and environmental conditions in relation to which individuals experienced diminished personal control and accountability or to group phenomena in which personal responsibility was diluted. It is important to note that Bandura's (1986) full set of mechanisms of moral disengagement were broader in their scope and coverage than the rationalisation strategies Milgram (1974) proposed. This is understandable when one considers the context in which these studies were conducted. While Bandura (1986) intended for his mechanisms to be universally applicable and relevant in a wide range of contexts, Milgram (1974) intended for his strategies to have relevance in a very

specific, narrowly defined context which produced a moral conflict for individuals when they were required to obey authority even though this meant harming innocent people. Milgram's (1974) research raised the important point that in some situations, under specific circumstances individuals were likely to leverage justifications for antisocial behaviour that were characterised by a sense of not feeling accountable or responsible for their injurious conduct or its consequences. The existence of rationalisations that implied an external locus of responsibility also implied the obverse; rationalisations that implied an internal locus of responsibility. A closer examination of Bandura's (1986) eight mechanisms of moral disengagement revealed that in addition to displacement of responsibility and diffusion of responsibility (located in the agency locus), attribution of blame and dehumanisation (situated in the recipient locus) also tended to externalise responsibility for reprehensible behaviour. Moral justification, euphemistic labelling, advantageous comparison (located in the behaviour locus) and minimisation or distortion of consequences (situated in the outcome locus) were oriented towards reconstruing harmful actions or minimising their detrimental effects implying that individuals invoking these mechanisms understood their role in the execution of reprehensible behaviours and searched for ways to down-play the harm their actions were likely to cause, implying an internal locus of responsibility. The propensity for the mechanisms of moral disengagement to separate out into those that implied an internal locus of responsibility versus those that implied an external locus of responsibility suggested that the locus of responsibility criterion constituted a potential alternate way in which the moral disengagement construct could be conceptualised and re-framed. This unique conceptualisation will be explored in more detail later in the research questions chapter.

Thus, Bandura (1986), Sykes and Matza (1957) and Milgram (1974) all acknowledged the possibility that under certain conditions individuals could be confronted with behavioural options that conflicted with their internal moral standards thereby producing internal incongruence which resulted in the need to rationalise their forthcoming or previously enacted antisocial conduct in order to strip it of its detrimental character and render it benign and palatable to themselves. The notion of cognitive dissonance (Festinger, 1957) was a similar construct with which moral disengagement appeared to share conceptual and definitional overlaps. Cognitive dissonance was defined as an uncomfortable state of mind (Graham, 2007) or psychological state brought about when individuals' cognitions (i.e. beliefs, attitudes) were incongruent with their actions and behaviour producing aversive reactions which motivated them to resolve this inconsistency (Egan, Santos & Bloom, 2007) and restore cognitive and affective equilibrium. Thus, conceptually, cognitive dissonance appeared to exist at the same level of abstraction as the

selective activation or disengagement from internal control proposed by Bandura (1986). While Festinger (1957; p.264) also endeavoured to propose strategies for reducing the level of cognitive dissonance individuals experienced (1. by changing one or more elements involved in dissonant relations; 2. by adding new cognitive elements consonant with existing cognition and 3. by decreasing the importance of elements involved in dissonant relations) there appeared to be one key difference between his work and Bandura's (1986) work on moral disengagement, Sykes and Matza's (1957) work on the techniques of neutralisation and Milgram's (1974) work on obedience to authority. Festinger's (1957) proposals remained highly abstract and conceptual while the mechanisms of moral disengagement (Bandura, 1986), the techniques of neutralisation (Sykes & Matza, 1957) and the strategies for rationalising deviant behaviour in the context of obedience to authority (Milgram, 1974) were tangible and actionable behavioural strategies that individuals could leverage to justify their antisocial conduct to themselves in order to restore cognitive and affective equilibrium to their psychological states which were disrupted when they were confronted with choices that conflicted with their internal moral standards.

In summary, selective activation or disengagement from internal control, the undertaking to neutralise abhorrent behaviour and its consequences, the tendency to rationalise antisocial conduct by externalising responsibility for it to external authorities, and the process of cognitive dissonance were all conceptually similar insofar as they all constituted cognitive approaches invoked by individuals to distance themselves from their own reprehensible behaviour and its consequences. However, the specific mechanisms, techniques, and strategies they proposed to produce states of internal congruence when confronted with cognitive and behavioural options that deviated from internal moral standards were different. Of particular consequence were the ways in which the mechanisms of moral disengagement differed from the other techniques and strategies proposed in the alternate conceptualisations. The breadth and scope of Bandura's mechanisms of moral disengagement closely matched the techniques of neutralisation (Sykes & Matza, 1957) with a few significant additions (dehumanisation and advantageous comparison) while in relation to the strategies for justifying antisocial behaviour in the context of obedience to authority (which consisted solely of rationalisations that implied an external locus of responsibility) the scope of Bandura's (1986) mechanisms was broader encompassing mechanisms that implied both an internal and external locus of responsibility. When compared to Festinger's (1957) abstract proposals about how individuals could reduce cognitive dissonance which existed in the conceptual domain, Bandura's (1986) eight mechanisms of moral disengagement were specific, operationalisable and practically implementable. Thus, unlike the

techniques of neutralisation and strategies for rationalising antisocial behaviour in the context of obedience to authority and cognitive dissonance, moral disengagement, forming part of the self-regulation process situated in the broader paradigm of social cognitive theory, was steeped in and supported by a solid theoretical and conceptual framework (Osofsky et al., 2005). As such, it offered one of the most comprehensive theoretical accounts of how individuals responded to situations in which their internal standards were at odds with the behavioural choices and alternatives they contemplated and enacted replete with a range of tangible mechanisms they could leverage to rationalise their antisocial thoughts and actions.

(ii) *A critique of Bandura's (1986) conceptualisation of moral disengagement*

Theoretically, Bandura (1986) originally pitched moral disengagement as a complex eight-dimensional construct which could also be abstracted to a four-dimensional one on the basis of the four points in the self-regulation process at which he envisaged the eight mechanisms were likely to be selectively activated or disengaged. This dual portrayal of moral disengagement either as an eight-factor construct or a four-factor one raised the inevitable question of which, if any, of these theoretical conceptualisations most accurately and optimally defined this social cognitive predictor. The empirical research by Bandura and his colleagues in Table 2.1 revealed no attempts at treating moral disengagement as an eight-dimensional construct. However, in a study by McAlister et al. (2006) it was operationalised as a four-factor construct. This was the only study in which moral disengagement's original theoretical portrayal as a multi-dimensional construct was retained. In the remaining studies in which moral disengagement featured (Bandura et al., 1996a; 1996b; 2001a) it was operationalised as a uni-dimensional construct. The lack of clarity about moral disengagement's dimensionality in the theoretical realm (Bandura, 1986) and the inconsistencies in its operationalisation in empirical research, sometimes as a four-dimensional construct and at other times as a uni-dimensional one, raised questions about moral disengagement's factor structure. This will be re-visited later in section 2.3.1.3 of this chapter and again, in more detail, in the research questions chapter.

The dimensionality of moral disengagement has important structural implications in terms of reciprocality and temporality and these implications are different when moral disengagement is conceptualised as a multi-factorial construct versus when it is understood as a unitary one. As a uni-dimensional construct the structural implications of reciprocality and temporality exist at the inter-construct level. As a single-factor construct, moral disengagement in its entirety consists of

one component. This unitary component shares bi-directional relationships with other constructs (reciprocality) and either causes (precedes) or is caused by (follows) other constructs in the structural models (temporality). As a multi-dimensional construct, however, the structural implications of moral disengagement exist at both an inter-construct and an intra-construct level. Based on the internal mechanics of social cognitive theory (Bandura, 1986) the multiple composite elements of the moral disengagement construct should theoretically share bi-directional relationships with each other (reciprocality at an intra-construct level) and with the other constructs (reciprocality at an inter-construct level) in the model. There is also the theoretical possibility that not all the composite elements of moral disengagement will be selectively activated or disengaged simultaneously but rather that they will be invoked at different temporal points suggesting that some composite elements would precede others (temporality at an intra-construct level) in structural models of social cognitive theory. In addition to the temporal relationships the components of a multi-dimensional moral disengagement construct would share with each other, they would also share temporal relationships with the other social cognitive constructs in a structural model (temporality at an inter-construct level). In Bandura's (1986) conceptualisation of social cognitive theory he explicitly acknowledged reciprocality and temporality at an inter-construct level but there was less clarity about his ideas on intra-construct reciprocality and temporality. Bandura (1986) did not comment on the nature of the reciprocal relationships between the composite elements of moral disengagement as a multi-dimensional construct nor did he explicitly cater for the possibility that there may be a temporal sequence underlying their activation.

(b) Self-efficacy

A key facet of human agency is self-referential thought which acts as a causal contributor to psychosocial functioning by mediating the relationship between knowledge and action (Bandura, 1986; 1997). Beliefs of personal efficacy are a pervasive mechanism of personal agency through which individuals attempt to exert control over the events that affect their lives (Bandura, 1986; 1997) by recognising that they could generate sought after changes and effects through their actions (Bandura, 2006). Bandura (1986, p. 391) defined perceived self-efficacy as "people's judgements of their capabilities to organise and execute courses of action required to attain designated types of performances". While he argued that competent functioning required both skills and the self-beliefs of efficacy to use them effectively, he emphasised that the notion of perceived self-efficacy was not preoccupied with skills but with conceptions about what one

could do with those skills (Bandura, 1986). Self-efficacy was conceptualised as a generative capability that required optimal organisation and effective orchestration of appropriate cognitive, social, emotional and behavioural sub-skills to attain a variety of desired outcomes. Social cognitive theory recognised the distinction between possessing relevant sub-skills, integrating them into appropriate courses of action and executing them effectively in a variety of circumstances. Thus, simply knowing what to do and possessing the individual sub-skills necessary to attain discrete outcomes did not guarantee an integrated performance that consistently produced optimal outcomes. Self-referent thought was an instrumental intermediary that activated cognitive, motivational and affective processes which guided the rendition of knowledge and abilities into proficient action (Bandura, 1997).

(i) *Self-efficacy as a multi-dimensional domain-specific construct*

Theoretically, self-efficacy was conceptualised as a multi-dimensional construct that varied across different activity domains, based on differential levels of task demands within specific activity domains and due to different situational circumstances (Bandura, 1997). It was not deemed viable as a single global trait but rather as a differentiated set of beliefs linked to specific domains of functioning (Bandura, 1998). Thus, self-efficacy relied on particularised assessment measures that captured the unique contexts in which it possessed predictive relevance to accurately evaluate its explanatory role in explaining and predicting human motivation, thought and action (Bandura, 1997). A comparison of the social cognitive constructs included in studies of prosocial and antisocial instances of behaviour undertaken by Bandura and his colleagues revealed two important dimensions on the basis of which self-efficacy's multi-dimensional quality was captured in the empirical research (see Table 2.1). The first was domain specificity. Using the study by Bandura et al. (2001a) as an illustrative example, self-efficacy was operationalised in accordance with three different relevant domains of perceived personal efficacy which diminished children's propensity to engage in transgressive behaviour: academic efficacy; social efficacy and self-regulatory efficacy to resist pressure from peers to engage in transgressive behaviours. Perceived academic efficacy assessed children's beliefs in their own capabilities to develop proficiency in different subject areas including mathematics, science, reading and writing language skills and social studies. Perceived social efficacy measured the beliefs children had in their own capabilities to develop and maintain social relationships, to collaborate with others on tasks and to handle different types of interpersonal conflicts. Finally, self-regulatory efficacy assessed beliefs in children's capabilities to resist peer pressure to engage

in risky conduct such as the use of alcohol and drugs and the enactment of transgressive behaviour that could result in detrimental consequences for themselves. This operationalisation of self-efficacy as a domain-specific construct represented by differentiated sets of beliefs of individuals' own capabilities linked to three separate domains of functioning rather than as an undifferentiated omnibus trait supported its characterisation as a multi-dimensional construct.

The distinction between personal efficacy and collective efficacy constituted the second dimension on the basis of which self-efficacy's multi-dimensional nature was captured in the empirical research by Bandura and his collaborators. Social cognitive theory differentiated between personal agency and collective agency. Personal agency referred to the mechanisms through which individuals influenced their own lives. Self-efficacy was identified as one of the primary mechanisms of personal agency. Collective efficacy referred to individuals' shared beliefs in their collective capabilities to create desired outcomes and was more than the sum-total of the personal efficacy beliefs of individual group members. It constituted a group-level attribute in its own right (Bandura, 1998). Thus, Bandura (1998) argued that while personal and collective efficacy beliefs differed in terms of their unit of agency, they both served similar functions and operated through similar processes. Drawing on the study by Bandura et al. (2011) on the impact of family efficacy beliefs on quality of family functioning and satisfaction with family life, the operationalisation of self-efficacy as a multi-dimensional construct consisting of personal efficacy and collective efficacy components was examined. Parental self-efficacy, spousal self-efficacy and filial self-efficacy constituted the personal efficacy facets of the construct while collective family efficacy represented the group-level component. Perceived collective family efficacy assessed beliefs in the family's efficacy to work together as a unit to accomplish objectives necessary for effective family functioning. Thus, it tapped into judgements of the family's perceived capability to operate as a cohesive and co-ordinated collective and differed fundamentally from personal efficacy beliefs held by family members regarding their individual capabilities to develop and maintain healthy and constructive relationships with their children, spouses or parents; depending on which family member was used as the point of reference (Bandura et al., 2011). While the preceding discussion offered examples of the operationalisation of self-efficacy as a multi-dimensional construct which were in line with Bandura's (1997) theoretical conceptualisation of it, some empirical studies (Wood & Bandura, 1989a; 1989b; Bandura & Wood, 1989; Bandura & Jourden, 1991; Caprara et al., 1998; Caprara et al., 2005; Caprara et al., 2008) treated self-efficacy as a uni-dimensional general global trait which deviated from Bandura's (1997) multi-dimensional conceptualisation. Thus, although he explicitly

denounced self-efficacy as an omnibus trait, he seemed to operationalise it as a global all-purpose measure in some instances. Bandura (1998) acknowledged that global measures tended to be used for convenience rather than for their superior predictive and explanatory power. Therefore, even though self-efficacy may have been treated by Bandura and his colleagues as a uni-dimensional omnibus measure in some empirical studies, based on his theoretical conceptualisation it was probably more accurately operationalised as a multi-dimensional construct which potentially possessed greater explanatory and predictive power (Bandura, 1998).

(ii) *The regulatory aspect of self-efficacy in antisocial contexts*

The notion of self-efficacy in social cognitive theory appears to possess a distinctive proficiency-based quality focused on the capability to consistently execute appropriate skills whenever necessary to produce optimal outcomes. However, when individuals are confronted with antisocial behavioural choices, self-efficacy also appears to assume an inhibitive quality which has been termed self-regulatory efficacy (Bandura, 2006). According to Bandura (2006) self-regulatory efficacy in these contexts refers to the belief in one's capacity to regulate one's behaviour by refraining from harmful or deviant behaviour. When individuals exercise self-regulatory efficacy in antisocial contexts, they express a belief in their ability to opt for prosocial alternatives even when confronted with antisocial options. This suggests that they may not need to morally disengage from their own internal standards since the prosocial alternatives they are opting for may already be in line with their moral standards. Consequently, when moral disengagement is activated in antisocial contexts, the likely implication is that individuals did not possess sufficient confidence in their capabilities to resist the antisocial behavioural options with which they were presented and, therefore, did not demonstrate self-regulatory efficacy. Thus, in the context of antisocial behaviour the presence of moral disengagement could imply the absence of self-regulatory efficacy and the presence of self-regulatory efficacy could imply the absence of moral disengagement. This relationship between self-regulatory efficacy and moral disengagement was reflected in the empirical research either as an inverse relationship between self-regulatory efficacy and moral disengagement (Bandura, Caprara, Barbaranelli, Pastorelli & Regalia, 2001b) or as the physical absence of the moral disengagement construct when self-regulatory efficacy was present (Caprara, Scabini, Barbaranelli, Pastorelli, Regalia & Bandura, 1998; Bandura, Caprara, Barbaranelli, Gerbino & Pastorelli, 2003; Caprara, Regalia & Bandura, 2002) in structural models based on social cognitive theory. These studies conclusively illustrated an inverse relationship between self-regulatory efficacy and antisocial conduct suggesting that

when individuals believed in their ability to refrain from antisocial choices or to select prosocial options they tended to engage in prosocial behaviours (Bandura et al., 2001a; Caprara et al., 1998; Bandura et al., 2003; Caprara et al., 2002) which obviated the need for moral disengagement which empirically tended to be positively correlated with transgressive behaviour (Bandura et al., 2001a). While the presence or absence of self-regulatory efficacy in antisocial contexts informed whether individuals selected prosocial or antisocial behavioural choices respectively, the role of moral disengagement in social cognitive theory was to explain the strategies individuals used to rationalise or justify their antisocial behavioural choices when they were unable to exercise appropriate self-regulatory efficacy. Although self-regulatory efficacy may appear to be more relevant when explaining antisocial behaviour, Bandura (1986) acknowledged that individuals were also able to achieve noteworthy successes by effectively regulating their own behaviour to produce prosocial outcomes. Thus, although self-regulatory efficacy was only discussed in the context of antisocial behaviour in this section as a result of the special relationship it appeared to share with moral disengagement, it must be emphasised that it is also predictive of prosocial behaviour.

(iii) *A comparison of self-efficacy with similar constructs in popular social psychological theories*

There was no theoretically equivalent or conceptually similar construct to the social cognitive notion of self-efficacy in Fishbein and Ajzen's (1975) theory of reasoned action. In the theory of planned behaviour, self-efficacy was subsumed by perceived behavioural control. Although Ajzen (1991) equated the notion of perceived behavioural control with the social cognitive notion of self-efficacy, a deconstruction of the concept revealed two distinct factors: self-efficacy and controllability. The self-efficacy factor was typically measured by items pertaining to the ease or difficulty of performing a behaviour or confidence in one's ability to perform a behaviour. In contrast, the controllability factor (not to be confused with locus of control) was measured by items that captured the extent to which the performance of a specific behaviour was within the control of the actor (Ajzen, 1991). In line with the treatment of the self-efficacy and controllability components of the theory of planned behaviour's perceived behavioural control construct as discrete factors (Armitage & Conner, 2001), Bandura's (1997) theoretical notions of controllability and self-efficacy were also interpreted as discrete concepts (Armitage & Conner, 2001). While the theory of planned behaviour regarded them as two facets of a unitary construct namely, perceived behavioural control (Ajzen, 1991), social cognitive theory treated them as two separate but related entities. Bandura (1997; p. 23) proposed that controllability affected the

extent to which efficacy beliefs shaped outcome expectations and the extent to which outcome expectations added incrementally to the prediction of performance. This interpretation implied that controllability exerted a causal influence on the interactions between self-efficacy, outcome expectations and behavioural performance and, consequently, that perceived controllability was a pre-requisite for the relevance of perceived self-efficacy as a predictor of human behaviour in social cognitive theory. In the author's interpretation, the belief that individuals can produce desired outcomes through their own efforts because those outcomes are within their sphere of control as opposed to being influenced and controlled by factors external to the individual may be the catalyst for activating the perceived self-efficacy construct in social cognitive theory. It makes sense that once individuals have established that desired outcomes are within their sphere of control, they set out to evaluate their beliefs in their own capabilities (i.e. their perceived self-efficacy) to organise and execute the requisite courses of action to attain the desired outcomes in question (Bandura, 1997). If they believed that outcomes were a function of factors outside their sphere of influence then they may regard an evaluation of their personal beliefs of efficacy to organise actions to produce those outcomes as moot. Unlike the theory of planned behaviour, the theory of interpersonal behaviour did not explicitly cater for a construct that was equivalent or similar to Bandura's (1986) notion of self-efficacy. Triandis (1977) identified social factors as one of three broad classes of predictors of behavioural intention in conjunction with cognitive factors and affective factors and acknowledged the importance of the self-concept as a determinant within the social factors domain. This was probably Triandis' (1977) closest attempt at specifying a construct similar to self-efficacy but Bandura (1997) made a clear distinction between the general notion of the self-concept and social cognitive theory's self-efficacy construct. However, Triandis' (1977) theory of interpersonal behaviour was not pitched as an unchangeable framework for explaining human behaviour and made allowances for the addition of relevant constructs that may have been omitted. This implies that the notion of self-efficacy as it was defined in social cognitive theory could have been added to the theory of interpersonal behaviour to offer a more comprehensive prediction of behaviour. If it were added, it would probably constitute part of the social factors component.

(c) Outcome expectations

Bandura (1986) defined outcome expectations as judgements about the likely consequences of actions. This definition alluded to their anticipatory quality (Bandura, 2004a) as judgements formed prior to the execution of behaviour. Individuals were likely to enact behaviours they

believed would produce positive or favourable future consequences. In his discussion on the anticipatory nature of outcome expectations, Bandura (1986) also discussed actual outcomes and cautioned against confusing these, which were the consequences of actions, with actions themselves since outcomes tended to follow and flow from actions. Thus, how one ultimately behaved determined the outcomes one experienced. In his later work, Bandura (1997) contended that outcome expectations could assume one of three forms: 1) physical, 2) social and 3) self-evaluative outcome expectations. He conceptualised them as anticipatory mechanisms that encompassed attitudes "measured by perceived outcomes and the value placed on those outcomes" and norms, measured by "social pressures and one's motivation to comply with them" (Bandura, 2004a; p. 146). Bandura (2004a) envisaged positive and negative outcome expectations arising from the perceived advantages and disadvantages of specific past behaviours or anticipated courses of action. Encompassed in a later conceptualisation of expected outcomes, Bandura (2004a) envisioned a merging of attitudes and subjective norms as they have traditionally been defined in the theories of reasoned action and planned behaviour. In the theory of planned behaviour, Ajzen (1991) identified attitudes towards behaviour, subjective norms and perceived behavioural control as determinants of intentions which preceded behaviour. Attitudes towards behaviour were defined as "the degree to which a person has a favourable or unfavourable evaluation or appraisal of the behaviour" (Ajzen, 1991; p. 188) and were measured by perceived outcomes and the value placed on those outcomes while subjective norms were measured by perceived social pressures and one's motivation to comply with them (Bandura, 2004a). Subjective norms were regarded as the social predictor of intentions and behaviour and referred to "the perceived social pressure to perform or not to perform the behaviour" (Ajzen, 1991, p. 188). Norms corresponded with Bandura's (2004a) notion of expected social outcomes envisaged for a given behaviour. Thus, Bandura (2004a) pitched his definition of outcome expectations as overlapping exactly with the concepts of attitudes and social pressures in the theories of reasoned action and planned behaviour which competed with social cognitive theory as paradigms for predicting and explaining human behaviour. Subsumed in his conception of outcome expectations, specifically in the form of social outcome expectations (i.e. subjective norms in the theories of reasoned action and planned behaviour), was an overt attempt to introduce the 'social' element into social cognitive theory (Bandura, 1997; 2004a).

Triandis (1977) situated the attitudes construct, as it was defined in the theories of reasoned action and planned behaviour, in the affective and cognitive factors components of his model of interpersonal behaviour. The affective factors included the emotions elicited by contemplating

behaviour while the cognitive factors reflected the subjective probabilities of perceived consequences of behaviour combined with the value individuals attached to these consequences (Triandis, 1977). Subjective norms, as it was defined in the theories of reasoned action and planned behaviour, appeared to be subsumed in Triandis' (1977) social factors component as part of the concept of norms. Norms were characterised as individuals' internal conceptions of what they deemed as appropriate behaviour based on what they had been taught and how they had been socialised as well as what other people pressured them to do on the basis of what these external parties considered to be socially acceptable (Triandis, 1977). It is this latter aspect of the definition of norms in the theory of interpersonal behaviour that seems to correspond with the subjective norms concept in the theories of reasoned action and planned behaviour and with the social outcome expectations component of the broader outcome expectations construct in social cognitive theory. Interestingly, while the social cognitive concepts of moral disengagement and self-efficacy were not consistently represented by equivalent or similar constructs in the theories of reasoned action, planned behaviour and interpersonal behaviour, notions of attitudes and subjective norms appeared to be universal across the theories of social psychology featuring as themselves in the theories of reasoned action and planned behaviour, as cognitive and affective factors (attitudes) and social factors (social norms) in the theory of interpersonal behaviour and as outcome expectations in social cognitive theory.

(d) Facilitators and impediments

Facilitators and impediments are the objective factors (Limayem et al., 2004) or conditions occurring within individuals, their specific situations or the sociostructural systems in which they are embedded that either positively or negatively impact behavioural performances (Bandura, 2004a). In social cognitive theory facilitators and impediments were conceptualised as inextricably intertwined with perceptions of self-efficacy (Bandura, 2004a), with self-efficacy informing the manner in which individuals responded to the range of objective facilitators and impediments that influenced their behaviour (Bandura, 1986). Bandura (2004a) proposed that those with low self-efficacy beliefs may feel thwarted and give up easily in the face of difficulties whereas those with strong self-efficacy perceptions may believe that it is possible to overcome obstacles through the acquisition and honing of skills and perseverant effort. He identified three types of facilitators and impediments: 1) personal factors; 2) situational factors; and 3) sociostructural or systemic factors (Bandura, 1986). Bandura (2004a) offered the example of depressed mood as a personal impediment to behaviour and argued that those with a high sense of

self-efficacy were likely to perceive a depressed mood as something they could overcome with enduring effort while those with low self-efficacy beliefs were likely to find a depressed mood difficult to overcome in the quest to engage in behaviours that produced desired outcomes. Among the objective personal factors that could influence individuals' behavioural performances were past experience, knowledge, abilities, skills and psychological elements (such as enduring personality traits, affective states, and behavioural preferences). Bandura (2004a) used the example of work pressure emanating from the specific circumstances individuals experienced in the workplace as a situational facilitator. Situational facilitators and impediments referred to objective aspects of the situations in which individuals found themselves which either enabled or impeded their behavioural performances. Sociostructural or systemic factors constituted the facilitators and impediments that reside in societal systems (Bandura, 2004a). They are rooted in the legal, economic and socio-political structures of society which regulate behaviour (Bandura, 2004a). Thus, there appears to be an interesting juxtaposition in the facilitators and impediments construct insofar as it tends to be individually and situationally-specific while simultaneously being constant in particular milieus when interpreted from a macro-contextual perspective. It is also clear that facilitators and impediments are either intra-individual (personal factors) or contextual (situational and systemic factors which originate in the environment in the form of other individuals, specific situations and social milieus). Situational and systemic facilitators and impediments are another attempt by Bandura (1986) to introduce the "social" into social cognitive theory in the form of external, environmental influences. The inclusion of every possible objective personal, situational and systemic factor into the equation when endeavouring to predict and explain human behaviour would be untenable. Therefore, researchers would have to draw on their deep understanding of the subject matter to identify those objective facilitating or impeding factors that have the most predictive relevance to and explanatory bearing on their foci of study for inclusion in the structural models they undertake to empirically test.

The social cognitive notion of facilitators and impediments (Bandura, 1986; 2004a) appears to correspond closely to the notion of facilitating conditions in the theory of interpersonal behaviour (Triandis, 1977). In Triandis' (1977) model, the presence or absence of facilitating conditions was believed to impact the likelihood of a specific behavioural performance at any level of habit or behavioural intention. Similar to Bandura's (1986) notion of facilitators and impediments comprising objective internal and external factors that exerted a causal influence on behaviour, Triandis (1977) suggested that facilitating conditions consisted of individual elements such as organisms' abilities, levels of arousal and knowledge required to successfully enact specific

behaviours and environmental elements (aspects of the total situation in which individuals found themselves) which objectively increased or detracted from the likelihood of engaging in a specific performance. These parallels between social cognitive theory's facilitators and impediments construct and the theory of interpersonal behaviour's facilitating conditions construct drawn by the author were not supported by Ajzen (2002) who proposed that the theory of interpersonal behaviour's facilitating conditions construct overlapped with social cognitive theory's self-efficacy instead in the same way that the theory of planned behaviour's perceived behavioural control construct did. Ajzen's (2002) interpretation did not separate the objective factors within individuals and their contexts from individuals' subjective perceptions of the internal (intra-individual) and external (situational and macro-contextual) factors that could influence their enactment of specific behaviours. As a result, the theory of planned behaviour included perceived behavioural control as a construct that leveraged individuals' subjective notions of the extent to which they believed they had the confidence to engage in specific behaviours and the extent to which they believed the enactment of the behaviours in question were within their sphere of control (as opposed to being influenced by factors in the external environment), instead of leveraging actual objective factors within individuals and their environments that facilitated or impeded their behavioural performances.

For the purpose of this discussion, facilitators and impediments were interpreted as the *objective* factors that impacted human behaviour in juxtaposition to subjective opinions or perceptions. This implied that objective and valid measurement tools are required to accurately assess them. Thus, in the author's opinion, self-report questionnaires tapping exclusively into attitudes and perceptions are insufficient. However, in the measurement of some personal facilitators and impediments (such as depression, personality traits, levels of arousal, etc.) the use of self-report measures is unavoidable since individuals are the best source of information about their own moods, psychological attributes, and preferences. However, these self-report measures have to be underpinned by some "psychological intelligence" grounded in philosophical and theoretical paradigms in the form of scoring mechanisms and decision rules to render the subjective information provided by individuals as objective and valid as possible. Thus, investigators of human behaviour are ultimately tasked with identifying the objective factors that constitute relevant personal, situational and systemic facilitators and impediments influencing human behaviour and developing or sourcing objective measures to validly assess them.

(e) Intention

In social cognitive theory intentions are synonymous with goals (Bandura, 2004a) and play a prominent role in the self-regulation of behaviour (Bandura, 1986). "An intention is defined as the determination to perform certain activities or to bring about a certain future state of affairs" (Bandura, 1986, p. 467). Intention may be expressed as resolve to engage in a specific course of action or to attain a certain level of performance. The statement of intention increases the likelihood that desired and sought after futures will be realised (Bandura, 1986). Bandura (1986) envisaged that the intentional regulation of behaviour operated through two cognitively-based sources of motivation that both relied on cognitive representational mechanisms. The first was anticipatory forethought which individuals used to cognitively represent future outcomes which served as motivators in the present for performing behaviours that would ultimately lead to the attainment of desired outcomes. The second was setting goals and reacting self-evaluatively to one's own behaviour. Individuals aspired to self-determined goals and levels of performance and were only satisfied and motivated when they succeeded in achieving these internal self-set standards. In this way, they created their own incentives to persist in their pursuit of desired outcomes (Bandura, 1986). Bandura (1986) cautioned that intentions should not be inferred from actions as this will provide a circular explanation in which the same event is taken as evidence of both its cause and its effect. Instead, intentions must be defined independently of the behaviours they regulate. In the social cognitive analysis of intention, the process of arriving at what one intends to do and the course of action one actually follows are separate events. Bandura (1986) differentiated goal intentions from simple action intentions and argued that the former were more important than the latter because they structured and guided human endeavours over longer periods of time. The traditional concept of intentions in the theory of reasoned action (Fishbein & Ajzen, 1975) and the theory of planned behaviour (Ajzen, 1991) corresponded with Bandura's (2004a) notion of proximal or short-term goals as opposed to distal or long-term goals, as did Triandis' (1977) notion of behavioural intentions.

Traditionally, intention was conceptualised as an immediate antecedent of behaviour in the theory of reasoned action (Fishbein & Ajzen, 1975) and the theory of planned behaviour (Ajzen, 1991; 2002). Bandura's (1986; 2004a) alignment of the concepts of intentions and goals with the intention construct in the theories of reasoned action and planned behaviour implied that like Ajzen (1991) he may also have conceived of intention as an immediate precursor to behaviour. However, he did not clarify its exact position in the social cognitive model apart from

acknowledging that it preceded behaviour. Bandura (1986) acknowledged that sometimes even the best intentions did not translate into desired outcomes and in so doing recognised that the formation of intentions to engage in behaviours did not automatically imply that individuals would ultimately engage in those behaviours. The potential for incongruence between intentions and performances is suggestive of some intervening factor or set of factors that could induce a deviation from one's intended behaviour to an alternate course of action or to no action at all. This implies that intention may not, as previously conceptualised, be the sole immediate precursor to behaviour and that, in fact, there may be other influences that impact on the relationship between intention and behaviour to determine whether or not behavioural intentions will be translated into congruent behavioural performances.

(f) Behaviour

Behaviour was the culmination of social cognitive theory and it was the construct the theory ultimately aimed to predict, change, or influence. Bandura (1986) offered a broad definition of behaviour which included physical actions and acts of thinking and conceptualised it as one of the three major classes of determinants of human behaviour, thought, and action. In line with the central tenet of reciprocal determinism, Bandura (1986) acknowledged that behaviour served as a determinant in structural models of social cognitive theory while simultaneously constituting the ultimate outcome variable in the structural analysis (i.e. past behaviour had a causal influence on future behaviour). This implied a time-lag between past behaviour as a cause and future behaviour as a consequence in social cognitive theory. It is important to note that other factors could also impact the relationship between past behaviour and future behaviour so that the former is not the sole determinant of the latter and the latter is not the sole consequence of the former implying that past behaviour may be predictive of other social cognitive variables and that similarly future behaviour may be caused by other social cognitive constructs. Bandura's (1986) definition of behaviour as one of the major classes of determinants of human motivation, thought and action in social cognitive theory implicitly catered for the notions of past behaviour and future behaviour. While the theories of reasoned action and planned behaviour did not include past behaviour as a predictor of future behaviour in their original formats, Triandis' (1977) theory of interpersonal behaviour considered one's own previous behaviour as a determinant of future behaviour in an illustrative example of the determinants of helping behaviour. The initial helping behaviour produces changes in an individual's self-concept which result in the belief that s/he is the kind of person who agrees to help others and contribute to good causes. This change in the

self-concept facilitates future helping behaviour. In addition, the initial helping behaviour constitutes the first step in the formation of the habit determinant of helping behaviour. Through repeated enactments of helping behaviour, it becomes routinised and by virtue of having become a habit (i.e. having engaged in the behaviour frequently in the past), it increases the probability of the individual engaging in the same routinised behaviour in the future. Thus, the notion of one's own previous behaviour as a determinant of future behaviour was acknowledged and intricately interwoven into the theory of interpersonal behaviour (Triandis, 1977), like it was in social cognitive theory.

2.3.1.3 A spotlight on moral disengagement

In an effort to address the first major shortcoming of social cognitive theory, identified earlier as the lack of a standardised set of constituent components, the preceding discussion identified and defined the generic building blocks of the theory which the author inferred from Bandura's (1986) theoretical conceptualisations and his empirical explorations. To recap, self-efficacy, outcome expectations, facilitators and impediments, intention and behaviour were the likely constituent components of structural models of social cognitive theory for explaining prosocial behaviour while this set of variables together with moral disengagement constituted the likely generic building blocks of structural models of social cognitive theory for predicting antisocial behaviour. The unique activation of moral disengagement in antisocial contexts and its unique contribution to the prediction of antisocial behaviour in social cognitive theory earned it a central place in this study. Moral disengagement constituted the focal variable of interest and was the subject of an in-depth exploration in this investigation. It is important to declare at this point that it was beyond the scope of this study to engage in similar comprehensive examinations of the other social cognitive building blocks identified in the preceding discussion. One of the main criticisms of Bandura's (1986) conceptualisation of moral disengagement noted earlier was the uncertainty surrounding its dimensionality. Theoretically, although it was pitched as an eight-dimensional construct, the possibility to abstract the eight mechanisms of moral disengagement on the basis of the four points in the self-regulation process at which they were likely to be activated was also catered for. This dual portrayal introduced doubts about whether moral disengagement was more predictive as an eight-faceted construct or as a four-dimensional one. This uncertainty was further compounded when Bandura et al. (1996a; 2001a) operationalised moral disengagement as a unitary construct in explorations of delinquent, aggressive and transgressive behaviour. The possibility that moral disengagement could be more predictive as a

unitary construct and not the multi-dimensional construct it was originally conceptualised as, introduced further complexity to the existing lack of clarity about its dimensionality. The first main aim of this study is to examine moral disengagement's dimensionality. The research questions pertaining to this aim will be presented in the research questions chapter.

2.3.2 Lack of clarity about the interactions between the social cognitive predictors of human behaviour

Earlier the author introduced two practical challenges that detracted from social cognitive theory's empirical testability. The first was the absence of a clear set of building blocks to consistently serve as the predictors of human behaviour. This issue was explored in detail in the preceding discussion. The second was the lack of a comprehensive explanation of how the building blocks of social cognitive theory were expected to cohere and interact with each other in consistent and predictable patterns in the context of integrated structural models geared towards explaining behaviour. It is to this second major theoretical criticism that the discussion will now turn.

Prochaska (2006) recognised the lack of integration between Bandura's (1986) constructs as a gap in social cognitive theory. While it was possible to derive a list of the constructs for predicting human behaviour from Bandura's (1986) seminal work and a perusal of some of his empirical research (see Table 2.1), no systematic relationships between these variables were specified to illustrate how they interacted with each other in a cohesive causal model. Thus, it was not clear how Bandura (1986) envisaged the discrete generic building blocks of social cognitive theory would interact in consistent and predictable ways to explain human behaviour. A perusal of the foundational text on social cognitive theory revealed a handful of disjointed relationships between isolated constructs (Bandura, 1986). These interactions will be explored next. Bandura (1986) alluded to a causal relationship between self-efficacy and outcome expectations in which the outcomes individuals anticipated were dependent on their judgements of how well they believed they would perform in specific situations. Thus, self-efficacy was pitched as a cause or determinant of outcome expectations. Further, Bandura (1986) conceptualised self-efficacy as a stronger predictor of behaviour than outcome expectations and argued that if perceptions of self-efficacy had already been invoked in the prediction of human behaviour, then the incremental value that outcome expectations would add would be minimal. Self-efficacy was also conceptualised as inexorably intertwined with facilitators and impediments, with perceptions of

one's capabilities informing the manner in which facilitating and impeding factors were interpreted and processed (Bandura, 1986). Beyond these isolated theoretical references to causal sequences between self-efficacy and outcome expectations and self-efficacy and facilitators and impediments, for example, Bandura (1986) did not comment explicitly on how all the social cognitive variables would theoretically interact in the context of a cohesive framework to predict human behaviour until later publications in which he proposed a common conceptual social cognitive model for predicting personal and organisational performance accomplishments and health promoting behaviour (see Figure 2.3) as specific instances of prosocial behaviour (Bandura, 2000; 2004a).

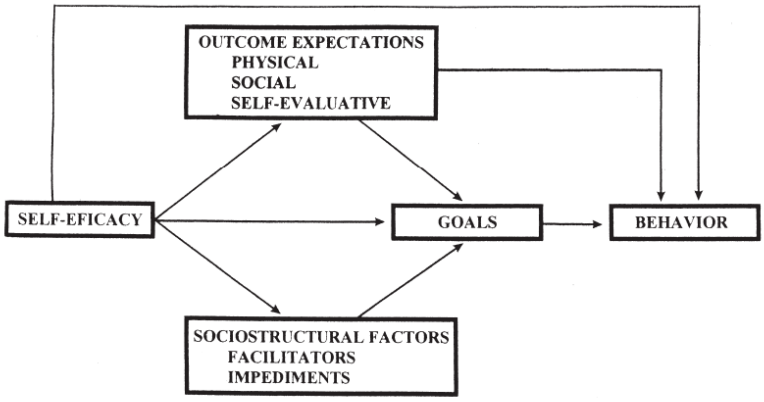


Figure 2.3: Conceptual structural model of social cognitive theory for predicting prosocial behaviour (taken directly from Bandura, 2004a; p. 146)

This theoretical model was acknowledged earlier for its contribution to concretising the basic building blocks of social cognitive theory and shedding light on the causal interactions between them in the context of a unified structural model. It is on these causal interactions that the discussion which follows will focus. The model highlighted both direct and indirect (mediational) influences between the social cognitive constructs including some complex mediational effects involving multiple mediators. Self-efficacy featured prominently as the originating variable in this model and impacted behaviour both directly and indirectly through its influence on outcome expectations, sociostructural facilitators and impediments and goals or intentions. Self-efficacy preceded outcome expectations, sociostructural facilitators and impediments, (which was consistent with the original conceptualisation of the temporal sequences between these sets of constructs) intention and behaviour. While self-efficacy directly impacted intention, it also exerted an indirect influence on it through the outcome expectations and sociostructural facilitators and impediments constructs. Outcome expectations had a direct influence on

behaviour and also indirectly impacted it through the intention construct. Thus, outcome expectations was conceptualised as an antecedent to intention and behaviour. No direct or indirect relationships were noted between outcome expectations and sociostructural facilitators and impediments. Sociostructural facilitators and impediments exerted a direct causal influence on intention but only had an indirect effect on behaviour through intention and like outcome expectations was positioned as preceding intention and behaviour. In addition, it mediated the influence of self-efficacy on intention. Finally, intention was envisaged as an immediate antecedent to behaviour and as a mediator of the effects of self-efficacy, outcome expectations and sociostructural facilitators and impediments on behaviour.

The proposed structural paths between the constructs in the conceptual model (Bandura, 2000; 2004a) extended the original formulation of social cognitive theory (Bandura, 1986) by formalising a theoretical interpretation of how the constituent components were likely to interact with each other in an integrated fashion to predict human behaviour. However, this model was specifically oriented towards explaining prosocial behaviour (i.e. performance accomplishments and healthy behavioural choices) which implied that it only incorporated the social cognitive constructs identified earlier as being relevant for predicting prosocial choices and, consequently, only explained the likely causal interactions between them. This meant that it necessarily excluded moral disengagement which, as noted earlier, was uniquely activated in antisocial contexts. Thus, it was not within the scope of the conceptual model (based on its exclusively prosocial orientation) to comment on the causal interactions between moral disengagement and the other social cognitive variables. This inevitably led to questions about how moral disengagement actually fitted into structural models of social cognitive theory and interacted with the other building blocks to predict antisocial behaviour. In an attempt to answer these questions, the author turned to empirical studies by Bandura and his colleagues that tested structural models for explaining antisocial behaviour. Since moral disengagement was the focal variable of interest in this study it was especially important to understand its interactions with the other building blocks. It is, thus, in an exploration of the interactions between moral disengagement and each of the other social cognitive variables for predicting antisocial behaviour that the following discussion will culminate. In the exploration of these specific interactions, the author will focus on the temporal precedence of the constructs as they related to each other and on the directionality (positive or negative) of these relationships. Leading up to the specific examination of moral disengagement's interactions with the other social cognitive variables (based on findings from the empirical research on antisocial behaviour), the author will first broadly explore the

main interactions (focusing once again, on temporal precedence and directionality) between the full set of social cognitive building blocks in the structural models investigated by Bandura and his colleagues in their empirical research.

2.3.2.1 Bandura's empirical attempts to specify the interactions between the constituent components of social cognitive theory for explaining antisocial behaviour

For insights about Bandura's thoughts about how moral disengagement interacted with other social cognitive constructs to predict antisocial behaviour, the author consulted empirical research in which Bandura was credited as an author. Of the six studies captured in Table 2.1 in the category of antisocial behaviour, only three leveraged moral disengagement as a predictor. Bandura et al. (1996a; 2001a) included the moral disengagement construct (as a unitary variable) as a predictor of aggressive, delinquent and transgressive behaviour and McAlister et al. (2006) leveraged a four-dimensional moral disengagement construct to predict military force in response to a terrorist attack. In this section each of these studies will be examined to extract the likely interactions between moral disengagement and the other social cognitive predictors of antisocial behaviour as well as the likely casual relationships among the remaining social cognitive building blocks in the empirically tested structural models. The causal relationships that emerged from these empirical studies are summarised in Table 2.3.

The first study was geared towards explaining delinquent and aggressive behaviour (Bandura et al., 1996a) using a cross-sectional research design in which moral disengagement was conceptualised as the originating variable. It had a direct relationship with delinquent behaviour and also impacted it indirectly through aggression proneness which consisted of an affective (irascibility) and cognitive (hostile rumination) component. The cognitive component of aggression proneness bore a strong resemblance to the notion of intention while the affective component corresponded most closely with the personal factors aspect of the facilitators and impediments construct. To avoid conceptual blurring the author treated the aggression proneness variable only as intention for the purpose of this analysis. Thus, when translated into the generic social cognitive terms which were defined in the preceding discussion, moral disengagement seemed to impact delinquent behaviour indirectly through the intention variable. A variable labelled guilt and restitution was included in this model. This construct was designed to tap into the degree of guilt, remorsefulness and self-criticism individuals anticipated for engaging in antisocial conduct.

Table 2.3: A comparison of the causal paths in social cognitive theory across prosocial and antisocial contexts

PROSOCIAL BEHAVIOUR	ANTISOCIAL BEHAVIOUR			
Bandura (2000; 2004a) **Performance; healthy habits**	**Bandura et al. (1996a)** **Delinquent behaviour**	**Bandura et al. (1996a)** **Aggressive behaviour**	**Bandura et al. (2001a)** **Transgressive behaviour**	**McAlister et al. (2006)** **Military force and terrorism**
	MD ⇨ OE (-) MD ⇨ INT (+)	MD ⇨ OE (-) MD ⇨ INT (+)	MD ⇨ INT (+) MD ⇨ BEH (+)	MD ⇨ BEH (+)
	MD ⇨ PB (+)? MD ⇨ OE ⇨ INT MD ⇨ OE ⇨ PB? MD ⇨ OE ⇨ INT ⇨ PB? MD ⇨ INT ⇨ PB?	MD ⇨ OE ⇨ INT MD ⇨ OE ⇨ PB? MD ⇨ OE ⇨ INT ⇨ PB? MD ⇨ INT ⇨ PB?	MD ⇨ INT ⇨ PB? MD ⇨ INT ⇨ BEH MD ⇨ INT ⇨ PB ⇨ BEH? SE ⇨ MD (-) SE ⇨ MD ⇨ INT SE ⇨ MD ⇨ INT ⇨ BEH	
SE ⇨ OE (+) SE ⇨ F&I (+) SE ⇨ INT (+) SE ⇨ BEH (+) SE ⇨ OE ⇨ INT SE ⇨ F&I ⇨ INT SE ⇨ INT ⇨ BEH SE ⇨ OE ⇨ INT ⇨ BEH SE ⇨ F&I ⇨ INT ⇨ BEH			SE ⇨ BEH (-)	
			SE ⇨ PB? (-)	
OE ⇨ INT (+) OE ⇨ BEH (+) OE ⇨ INT ⇨ BEH	OE ⇨ INT (+) OE ⇨ BEH (-) OE ⇨ INT ⇨ BEH	OE ⇨ INT (+) OE ⇨ BEH (-) OE ⇨ INT ⇨ BEH		
				F&I ⇨ MD (+) F&I ⇨ MD ⇨ BEH
F&I ⇨ INT (+) F&I ⇨ INT ⇨ BEH				
INT ⇨ BEH (+)	INT ⇨ BEH (+)	INT ⇨ BEH (+)	INT ⇨ BEH (+) INT ⇨ PB? (+) INT ⇨ PB ⇨ BEH? PB ⇨ BEH (+)	

MD = Moral disengagement SE = Self-efficacy OE = Outcome expectations F&I = Facilitators and impediments INT = Intention BEH = Behaviour PB = Past behaviour

Guilt and restitution corresponded with the negative outcome expectations individuals anticipated. Thus, moral disengagement had a direct, negative causal path to guilt and restitution. The indirect relationships between moral disengagement and intention (aggression proneness) and between moral disengagement and delinquent behaviour were mediated by the outcome expectations (guilt and restitution) construct. Outcome expectations (guilt and restitution) had a direct, positive causal relationship with intention (aggression proneness) but this relationship seemed contradictory in the light of its negative causal interaction with antisocial behaviour. It stands to reason that if one expects a negative outcome for engaging in an antisocial behaviour then one is unlikely to ultimately engage in that behaviour. Similarly, if one expects a negative outcome for engaging in an antisocial behaviour then one is also unlikely to form intentions to engage in that behaviour implying that there should be a corresponding inverse relationship between negative outcome expectations and intention as there was between negative outcome expectations and behaviour. Thus, this finding was confusing. An indirect relationship between outcome expectations and delinquent behaviour which was mediated by intention was proposed. Further, a direct path between prosocial behaviour and outcome expectations (guilt and restitution) was observed with the latter mediating the effect of prosocial behaviour on intention (aggression proneness). The structural model capturing these interactions is presented in Figure 2.4a. A similar set of findings was noted in this study for the prediction of aggressive (as opposed to delinquent) behaviour with the following key difference. No direct relationship was noted between moral disengagement and aggressive behaviour. Instead the impact of moral disengagement on aggression was completely mediated by the aggression proneness (intention) construct. The structural model depicting these relationships is presented below in Figure 2.4b.

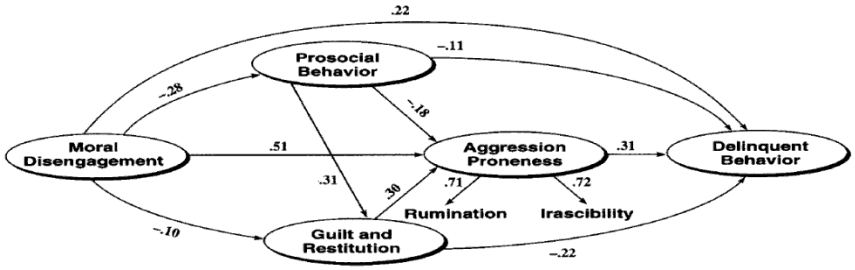


Figure 2.4a: Structural model of social cognitive theory for explaining delinquent behaviour (taken directly from Bandura et al., 1996a, p. 370)

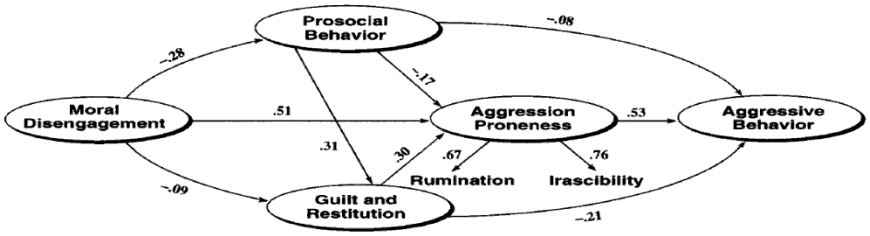


Figure 2.4b: Structural model of social cognitive theory for explaining aggressive behaviour (taken directly from Bandura et al., 1996a, p. 370)

The second study was longitudinal in nature and was oriented towards understanding transgressive behaviour over time (Bandura et al., 2001a). The self-efficacy construct, which was divided into academic efficacy, social efficacy and self-regulatory efficacy, constituted the originating variable and interacted directly with moral disengagement (in the form of negative causal relationships) and prosocial behaviour (in the form of positive causal relationships). These two variables mediated the impact of self-efficacy on ruminative affectivity (the ruminative component of this variable overlapped with the concept of intention) and ruminative affectivity, in turn, was a mediator of the influence of prosocial behaviour and moral disengagement on transgressive behaviour. For the same reasons cited above, the affective component of ruminative affectivity, which corresponded with the personal facilitators and impediments construct, was not separated from the ruminative component which overlapped with intention. Thus, for the purpose of this discussion, ruminative affectivity was treated as a unitary construct that corresponded with intention. Self-efficacy (academic self-efficacy and self-regulatory efficacy) was conceptualised as having a direct negative causal impact on transgressive behaviour as well as indirect effects through the moral disengagement, prosocial behaviour, ruminative affectivity and past transgressive behaviour variables. Intention's direct causal influence on future behaviour was logical but its direct causal relationship with past behaviour suggested that a future-looking variable measured in the present preceded a variable that had already occurred in the past. This causal sequence did not make sense and raised important challenges about temporal sequences and longitudinal research designs in the social cognitive domain which will be explored in more detail later in the section about the structural properties of social cognitive theory and their methodological implications. Figure 2.5 captures the causal sequences discussed above.

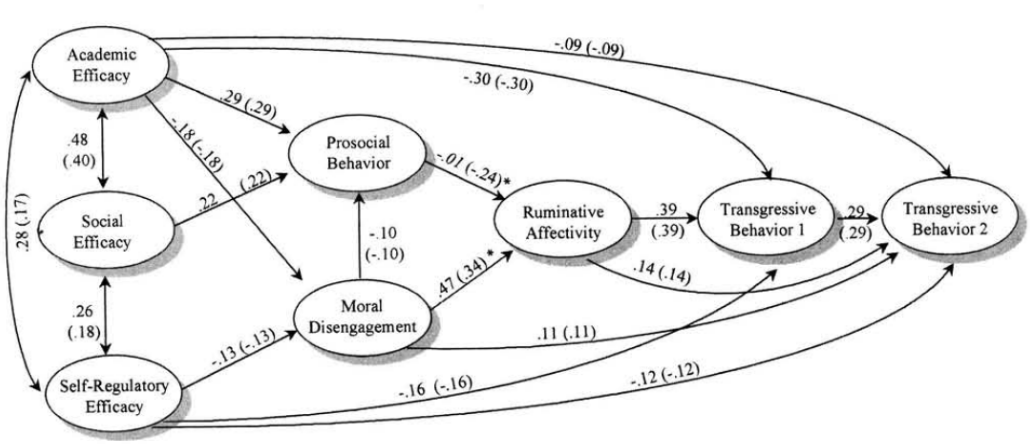


Figure 2.5: Structural model of social cognitive theory for explaining transgressive behaviour in a longitudinal study (taken directly from Bandura et al., 2001a, p. 130)

In the third study which examined support for military force in response to the terrorist attack on the World Trade Centre in the United States of America on 11 September 2001, McAlister et al. (2006) positioned moral disengagement as a mediator between sociodemographic factors (gender, age, education level, ethnicity, geographical region) and military support and between the terrorist attack and military support. Sociodemographic factors in this study corresponded to personal and situational factors in the generic facilitators and impediments construct identified earlier. The actual terrorist attack constituted an example of a sociostructural factor in the facilitators and impediments construct. Thus, McAlister et al. (2006) suggested that facilitators and impediments causally influenced moral disengagement and, consequently, situated the facilitators and impediments construct as antecedent to both moral disengagement and behaviour (which in this case was military force). Thus, moral disengagement was conceptualised as a mediator of facilitators and impediments and behaviour. This study was unique because it researched moral disengagement's role in predicting military force in the wake of an actual terrorist attack. Thus, inevitably, moral disengagement was sandwiched between a contextual stimulus (the terrorist attack) and a likely behavioural response leaving the researchers with no option but to treat it as a mediating variable. In the previous studies researching delinquent, aggressive and transgressive behaviour, however, the researchers were not confronted with similar contextual constraints allowing moral disengagement to be treated either as an originating variable or as a causal outcome of self-efficacy. This point will be elaborated on further in the research questions chapter. The causal sequences described above are graphically represented in Figure 2.6.

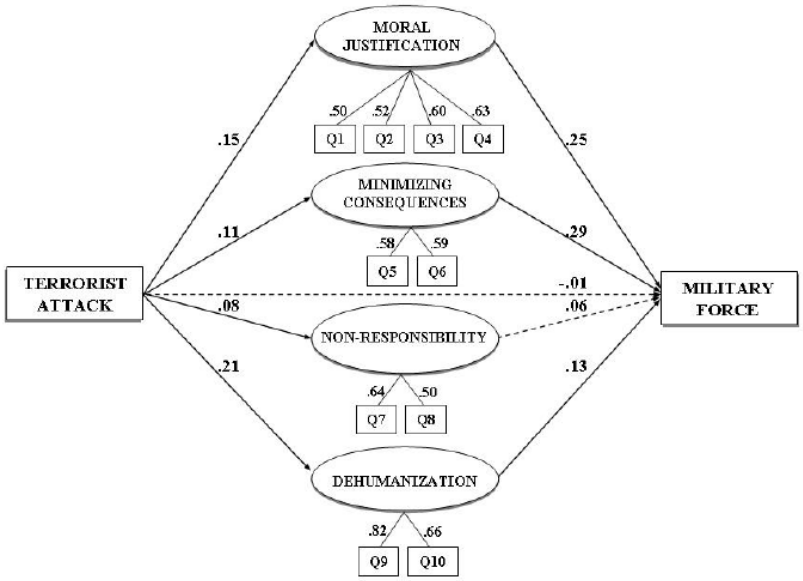


Figure 2.6: Structural model for explaining military force in response to a terrorist attack (taken directly from McAlister et al., 2006, p. 155)

In Table 2.3 the author presented the conceptual structural paths Bandura (2000; 2004a) envisaged between the generic social cognitive predictors of prosocial behaviour as a starting point from which to examine the interactions that emerged from the empirical studies of specific instances of antisocial behaviour. A cursory review of the interactions derived from deconstructing the structural models used to explain aggressive, delinquent and transgressive behaviour and military force, revealed that Bandura and his colleagues did not consistently use the same set of generic social cognitive predictors across the studies and, consequently, no perfectly consistent patterns of interactions among the social cognitive variables were possible. One commonality across these studies was the inclusion of moral disengagement as a predictor even though it was operationalised as a unitary variable in some cases (Bandura et al., 1996a; 2001a) and as a four-dimensional one in others (McAlister et al., 2006). Beyond this, self-efficacy, outcome expectations, facilitators and impediments and even intention were not consistently included. Bandura et al. (1996a) did not include self-efficacy as a predictor in the study on delinquent and aggressive behaviour but it was included in the study on transgressive behaviour (Bandura et al., 2001a). The self-efficacy variable also did not feature in the study on military force (McAlister et al., 2006). Outcome expectations did not feature consistently in the structural models in question. While it appeared in the study on delinquent and aggressive behaviour (Bandura et al., 1996a) as the guilt and restitution construct, it was absent in the

structural models oriented towards explaining transgressive behaviour (Bandura et al., 2001a) and military force (McAlister et al., 2006). The intention construct was included as aggression proneness and ruminative affectivity in the studies on delinquent, aggressive (Bandura et al., 1996a) and transgressive behaviour (Bandura et al., 2001a) respectively but was absent in the study about military force (McAlister et al., 2006). While McAlister et al. (2006) accommodated the personal, situational and sociostructural components of the facilitators and impediments construct in their study, the studies by Bandura et al. (1996a; 2001a) were interpreted without facilitators and impediments as a predictor of antisocial behaviour. This was due to the personal factors component of the facilitators and impediments construct being rolled into the same variable that mapped onto intention. In an effort to avoid conceptual blurring and explanatory confusion, the author opted to classify aggression proneness and ruminative affectivity exclusively as intention variables and in so doing lost the personal factors component of the facilitators and impediments construct as a predictor of behaviour in these specific cases.

Thus, while the other social cognitive predictors were not consistently included in the structural models of antisocial behaviour, the author ensured that only studies in which moral disengagement featured as a predictor were considered in this analysis in the light of its centrality to this investigation. As stated earlier, of particular interest in this study was the manner in which moral disengagement interacted with other social cognitive building blocks to predict antisocial behaviour. The interactions presented in Table 2.3 were used as the starting point for this exploration.

(a) Moral disengagement's relationships with intention and behaviour

Intention preceded behaviour and moral disengagement preceded intention. Therefore, intention appeared to mediate the relationship between moral disengagement and behaviour (Bandura, et al., 2001a). The direction between these relationships was always positive. There was a positive relationship between moral disengagement and intention and a positive relationship between intention and behaviour. This implied that if individuals morally disengaged they were more likely to form intentions to engage in antisocial behaviour and if they formed intentions to behave antisocially, they were more likely to act on these intentions. However, the relationship between moral disengagement and past behaviour was obscured in the study of transgressive behaviour (Bandura et al., 2001a). In this longitudinal investigation it made sense that moral disengagement preceded transgressive behaviour at Time 2. However, the structural model also depicted moral

disengagement as a prelude to transgressive behaviour at Time 1. This was confusing since both moral disengagement and transgressive behaviour at Time 1 were measured concurrently which implied that the latter was actually a measure of past behaviour. Effectively, therefore, the model implied that moral disengagement measured in the present temporally preceded and exerted a causal influence on transgressive behaviour that had already occurred in the past. This conceptualisation of moral disengagement as a prelude to transgressive behaviour at Time 1, therefore, was problematic. It would have been more reasonable if past behaviour (transgressive behaviour at Time 1) preceded and exerted a causal influence on moral disengagement measured in the present and if moral disengagement then temporally preceded future behaviour (transgressive behaviour at Time 2).

(b) The interaction between moral disengagement and self-efficacy

Self-efficacy only featured as a predictor, together with moral disengagement, in the study about transgressive behaviour (Bandura et al., 2001a). In this context it was envisaged as a prelude to behaviour but no direct relationship was found between it and intention. Instead, the impact of self-efficacy on intention was mediated by the moral disengagement construct. This suggested that self-efficacy preceded moral disengagement in the temporal sequence. It is important to note that the aspects of self-efficacy that interacted with moral disengagement and behaviour in this investigation consisted of a proficiency-based component in the form of academic efficacy and a self-regulatory component and that both of these facets of self-efficacy revealed inverse relationships with moral disengagement and with the ultimate dependent variable which was transgressive behaviour. The inverse relationship between self-regulatory efficacy and moral disengagement and between self-regulatory efficacy and transgressive behaviour was understandable. If individuals are able to refrain from engaging in antisocial behaviour (i.e. they demonstrate high self-regulatory efficacy) then they are unlikely to morally disengage (low moral disengagement) or enact the transgressive behaviour (low propensity to transgress). However, the inverse relationship between proficiency-based self-efficacy and moral disengagement and between proficiency-based self-efficacy and transgressive behaviour was not as intuitive. When individuals are confronted with the option to engage in a specific behaviour, they may first evaluate their beliefs in their own efficacy to execute that behaviour and in so doing activate proficiency-based self-efficacy as a predictor of behaviour. In the context of transgressive behaviour, assessments of proficiency-based efficacy are likely to take the form of evaluating perceived capabilities to execute the transgressive behaviour in question. However, Bandura et al.

(2001a) used evaluations of academic self-efficacy as a proficiency-based predictor of transgressive behaviour and it was this disjoint between the behavioural domain (which existed in the antisocial sphere) and the domain in which the proficiency-based self-efficacy beliefs existed (which pertained to beliefs in individuals' capabilities to perform prosocial behaviours) that led to an inverse relationship between proficiency-based self-efficacy and behaviour. In other words, if the researchers had tapped into proficiency to engage in the transgressive behaviour in question, it is likely that they would have observed a positive interaction between these constructs.

On the basis of this discussion, it seems reasonable that self-regulatory efficacy would temporally precede moral disengagement. Individuals would first assess their capability to resist making antisocial behavioural choices and if they felt they could not (low self-regulatory efficacy) they would activate the appropriate moral disengagement mechanisms to cognitively reconstrue the antisocial conduct as benign and in the service of beneficial personal and social ends. However, the temporal precedence between proficiency-based self-efficacy and moral disengagement was not as clear. While Bandura et al. (2001a) positioned proficiency-based self-efficacy in the form of academic self-efficacy as preceding moral disengagement, it was unclear whether this sequence would have still held true if the proficiency measure assessed individuals' proficiencies to engage in transgressive behaviour. In other words, would individuals first free themselves from the self-constraints imposed by their own internal standards by morally disengaging and then evaluating their proficiency to engage in transgressive behaviour or would they first assess their perceived capability to execute transgressive behaviour before morally disengaging from their internal standards? The empirical research by Bandura and his colleagues on antisocial behaviour did not offer a clear answer to this question.

(c) Moral disengagement's interaction with outcome expectations

Bandura et al. (1996a) proposed that when individuals morally disengaged from the detrimental consequences of their antisocial behavioural choices, they were likely to experience weaker feelings of guilt and self-criticism than when they did not morally disengage. This implied an inverse relationship between moral disengagement and guilt and restitution which mapped onto the generic social cognitive construct of outcome expectations and that moral disengagement preceded outcome expectations in the prediction of transgressive behaviour. It is plausible that individuals would first need to morally disengage from their reprehensible actions and in so doing make a cognitive commitment to engage in antisocial behaviour before giving themselves the

license and/or deeming it relevant to consider the outcomes (positive or negative) they are likely to realise by engaging in such behaviour. Thus, it seemed reasonable that moral disengagement preceded outcome expectations and when the outcome expectations were positive, a positive relationship with moral disengagement was expected, and when they were a negative, an inverse relationship with moral disengagement was anticipated.

(d) The relationship between moral disengagement and facilitators and impediments

The study portraying moral disengagement as a mediator of the relationship between a terrorist attack (a sociostructural factor of the facilitators and impediments construct) and military force (McAlister et al., 2006) was fundamentally different from the two that investigated structural models of social cognitive theory (which also included moral disengagement) aimed at explaining delinquent, aggressive (Bandura et al., 1996a) and transgressive (Bandura et al., 2001a) behaviour. The fact that the terrorist attack served as the impetus for the investigation of moral disengagement and military force, meant that this sociostructural facilitator necessarily temporally preceded moral disengagement. This temporal sequence was necessitated by a contextual stimulus and made sense in this unique situation. However, in the light of this study's uniqueness an important question was raised about whether the same temporal sequence between facilitators and impediments and moral disengagement would always hold true or whether moral disengagement could temporally precede the enabling or inhibiting impact of facilitators and impediments in other contexts.

2.3.2.2 A spotlight on moral disengagement's interactions with behaviour, intention and self-efficacy

The preceding discussion highlighted important questions about moral disengagement's temporal precedence in relation to other social cognitive constructs in structural models aimed at predicting antisocial behaviour and about the directionality of its causal relationships with these variables. However, it was not feasible to explore all these questions and points of contention in detail in this study. Therefore, only some of them were selected for further examination. First, the question about moral disengagement's temporal precedence in relation to antisocial behaviour was considered. The empirical studies unanimously suggested that moral disengagement preceded future antisocial behaviour and that the direction of this relationship was positive. Intention (when it was included as a predictor) also consistently preceded future behaviour and shared a positive

relationship with it while moral disengagement temporally preceded intention and they shared a positive causal relationship (Bandura et al., 1996a; 2001a). However, Bandura et al.'s (1996a; 2001a) treatment of past behaviour as an outcome of moral disengagement instead of as a causal contributor to it, created confusion about the temporal sequence between moral disengagement and past behaviour. This served as the impetus for examining moral disengagement's causal relationship with behaviour (both future and past) more closely in this study. A side-effect of this exploration was understanding moral disengagement's relationship with intention, given intention's close causal relationship with behaviour.

Second, the lack of clarity about the temporal sequence of moral disengagement and proficiency-based self-efficacy in the prediction of antisocial behaviour was also of interest in this study. The proficiency-based self-efficacy beliefs that Bandura et al. (2001a) tapped into, in their attempt to explain transgressive behaviour, were related to individuals' beliefs in their capabilities to perform optimally in a completely different prosocial behavioural domain (i.e. academic self-efficacy). They positioned academic self-efficacy (proficiency-based self-efficacy) as temporally precedent to moral disengagement and envisaged an inverse relationship between them. Unfortunately, this finding did not aid in understanding the interaction between moral disengagement and proficiency-based self-efficacy when the self-efficacy construct was oriented towards measuring individuals' beliefs in their capabilities to execute specific antisocial behaviours which were directly related to the ultimate antisocial behaviours in question. Thus, there was a question about the temporal precedence of moral disengagement and proficiency-based self-efficacy (related to proficiency to engage in antisocial behaviour) and about whether the relationship between these variables was positive or negative.

The second major aim of this study is to explore moral disengagement's interactions with intention and behaviour and with proficiency-based self-efficacy to understand the temporal sequences between these constructs and the directionality of their relationships. The specific research questions pertaining to this aim will be presented in the research questions chapter. It is important to note at this point that due to practical constraints the interactions between moral disengagement and outcome expectations and between moral disengagement and facilitators and impediments fell outside the scope of this investigation.

2.3.2.3 The internal mechanics of social cognitive theory: Bandura's (1986) notions of reciprocality and temporality as instrumental for researching interactions among the building blocks

Although Bandura (1986) was vague about how the building blocks of social cognitive theory were practically related to each other in the context of an integrated structural model to explain human behaviour, he did offer a useful conceptual analysis about how the major classes of social cognitive determinants were expected to interact in a pattern of triadic reciprocal causation. This theoretical analysis was important because it offered tangible guidance about how social cognitive models ought to be structured and, consequently, served as a firm starting point from which to empirically explore how the specific constituent components of social cognitive theory of interest in this study interacted with each other. Triadic reciprocal causation highlighted two crucial aspects pertaining to the inner mechanics of social cognitive theory. First, it emphasised reciprocality by representing every major class of determinant as sharing a bi-directional relationship with every other major class of determinant, implying that each caused and was caused by every other determinant (Bandura, 1978a). Second, it highlighted temporality by acknowledging that the causal relationships between each major class of determinant were sequential rather than instantaneous, implying the passage of time between the causes and consequences of behaviour (Bandura, 1983).

Reciprocality and temporality had important practical implications for the application of social cognitive theory to the problem of predicting human behaviour. These will be explored next. While reciprocality implied bi-directional interactions between the major determinants of human behaviour, it did not imply equivalence in the strength or patterns of these two-way influences. Therefore, social cognitive theory envisaged the relative influence exerted by the three major interacting determinants as variable and situationally-dependent on the individuals, activities and circumstances in question (Bandura, 1986). Triadic reciprocal causation also introduced the notion of temporality into the social cognitive equation. Causality implied a time-delay between the causal interactions among the major determinants of human behaviour and their reciprocal effects since it is theoretically and practically impossible for causes and their effects to materialise instantaneously. Thus, the triadic pattern of relationships among personal factors, environmental events, and behaviour in social cognitive theory was not envisaged as a simultaneous holistic interaction but rather as one in which the realisation of reciprocal effects in the context of causal interactions was sequential. This implied a time-lag between causal factors

and their reciprocal influences which was envisaged as variable for different activities (Bandura, 1983, 1986). These practical implications of the internal structural properties of reciprocality and temporality, in turn, had important methodological consequences for the construction and empirical testing of social cognitive models.

(a) Methodological implications of the underlying structural properties of reciprocality and temporality

Reciprocality implied bi-directionality of influence and two-way interactions between variables implied that they were both caused by and were determinants of each other. The notion of causality, in turn, was suggestive of a temporal spacing between causes and effects in reciprocal interactions. Thus, to hold true to the internal structural properties of social cognitive theory envisaged by Bandura (1986) and to test the interactions between moral disengagement and select social cognitive constructs in this study, it would seem appropriate to depict the relationships between the social cognitive variables as bi-directional and to cater for a time-lag to allow for causes and their effects to unfold (i.e. a longitudinal research design). Interestingly, though, Bandura (1986) did not interpret reciprocal determinism as demanding that all interacting constituents always be studied at once or insisting on the exclusive use of analytic strategies which examined reciprocal effects to understand the interactions between social cognitive constructs. This suggested that he saw the opportunity for social cognitive theory to be researched in discrete and incomplete segments to examine relationships between specific constructs without having to include the full set of variables each time. He also recognised the importance of understanding how certain social cognitive determinants produced change in the first place independently of the need to understand how the resultant changes impacted the subsequent interactions of the determinants (Bandura, 1986). In other words, Bandura (1986) did not dictate that in order to empirically research social cognitive theory, researchers should only use longitudinal research designs which catered for bi-directional relationships. In fact, he also saw the opportunity to empirically study social cognitive theory using cross-sectional research designs and uni-directional causal relationships.

This had important implications for how the interactions between the social cognitive constructs could be productively researched. First, when it was important to consider the bi-directionality of influences then longitudinal research designs which catered for bi-directional relationships were appropriate. In these instances, researchers could decide whether they were interested in only

exploring the interactions between some social cognitive constructs to understand the functioning of specific segments of the theory or the interactions between the full set of generic building blocks to understand the functioning of the theoretical framework as a cohesive whole. Second, when it was important to understand the influence of uni-directional causal relationships either cross-sectional or longitudinal research designs could be employed. Specifically, when the effects of a phenomenon which had already occurred in the past were being evaluated in the present, then a cross-sectional research design was appropriate and when the future effects (set to be measured at a future point in time) of a phenomenon occurring in the present or of a phenomenon that had already occurred in the past were of interest, then a longitudinal research design was appropriate. Table 2.4 summarises the capability of cross-sectional and longitudinal research designs to accommodate uni-directional and bi-directional causal relationships. Thus, depending on the ultimate aims of specific research initiatives it was feasible to use either cross-sectional or longitudinal research designs and to cater for either uni-directional or bi-directional causal influences between relevant social cognitive variables.

Table 2.4: The potential for uni-directional and bi-directional causal relationships in cross-sectional and longitudinal research designs

	Cross-sectional research designs	Longitudinal research designs
Uni-directional causal relationships	✓	✓
Bi-directional causal relationships	✖	✓

A review of the empirical studies by Bandura and his colleagues (referenced earlier in Table 2.1) yielded all these permutations which the author classified into three broad categories. The first category consisted of studies that were based on longitudinal research designs and catered for bi-directional influences (Wood & Bandura, 1989a; 1989b; Bandura & Wood, 1989; Bandura & Jourden, 1991; Zimmerman et al., 1992; Caprara et al., 2008). The second category was comprised of studies that were longitudinal in nature but which did not explicitly accommodate bi-directional influences (Ozer & Bandura, 1990; Bandura et al., 1999; Caprara et al., 2000; Bandura et al., 2001a; Caprara et al., 2005; Bandura et al., 2001b; Caprara et al., 2002; Bandura et al., 2003; McAlister et al., 2006). The third category of studies catered for cross-sectional research designs in which there was no time-lag built in to allow for the sequential unfolding of causes and effects or for the examination of bi-directional influences (Bandura et al., 1996b; Bandura et al., 2011; Bandura et al., 1996a; Caprara et al., 1998). A critical examination of how these empirical studies catered for reciprocality and temporality in their quest to explain specific instances of behaviour raised important considerations and questions which will be explored next.

(i) *Confusing temporal sequences involving past behaviour in social cognitive theory*

Bandura et al. (1996a; 1998) employed a cross-sectional research design in two studies aimed at investigating specific instances of antisocial behaviour. The structural models in these studies treated delinquent and aggressive behaviour (Bandura et al., 1996a) and delinquency and substance abuse (Bandura, 1998) as outcome variables even though they were measured concurrently with the other social cognitive constructs. This was confusing because theoretically when behaviour is measured in the context of a cross-sectional research design, it necessarily is a measure of behaviour that has already occurred in the past. Technically, therefore, in these studies Bandura and his colleagues proposed that moral disengagement, prosocial behaviour, outcome expectations (guilt and restitution) and intention (aggression proneness) measured in the present were determinants of delinquent and aggressive behaviour that had already occurred in the past (Bandura et al., 1996a) and that perceived self-regulatory efficacy and communication also measured in the present were predictors of delinquency and substance abuse which had occurred in the past (Bandura, 1998). This was not logical. In reality, past instances of antisocial behaviour temporally preceded current perceptions of moral disengagement, self-regulatory efficacy, outcome expectations and intention which suggested that these current perceptions were, in fact, influenced and informed by (i.e. they were outcomes of) the behaviour that had already occurred in the past. The representation of past behaviour in these structural models, therefore, was misleading and confounded its rightful temporal position in studies employing cross-sectional research designs.

A similar problem was observed in studies employing longitudinal research designs to explore transgressive behaviour (Bandura et al., 2001a), violent conduct (Caprara et al., 2002), depression, delinquency and prosocial behaviour (Bandura et al., 2003). The structural models proposed in these investigations depicted behaviour at Time 1 as temporally preceding behaviour at Time 2 which was reasonable, and conceptualised current perceptions of self-efficacy, moral disengagement and intention as preceding behaviour at Time 2 which was also sensible. However, the idea that these current perceptions of self-efficacy, moral disengagement and intention also preceded behaviour at Time 1 was not logical since, as in the case of the studies using cross-sectional research designs discussed earlier, when behaviour was measured concurrently with other social cognitive predictors at Time 1, it represented past behaviour that had already occurred and, consequently, was actually a determinant of these current cognitive perceptions rather than an outcome of them. Technically, therefore, behaviour at Time 1 should

have been treated as past behaviour which temporally preceded current perceptions of self-efficacy, moral disengagement and intention which, in turn, temporally preceded future behaviour (measured at Time 2 at some point in the future). This temporal sequence of past behaviour and future behaviour would have accommodated bi-directional influences between the social cognitive constructs and behaviour. However, due to past behaviour's awkward temporal position in these structural models and the resulting conceptual confounding it produced, these studies did not test for bi-directional influences between the social cognitive constructs and behaviour. Their erroneous treatment of behaviour as an outcome of current perceptions of self-efficacy, moral disengagement and intention, regardless of whether it was a measure of past behaviour or future behaviour, technically resulted in the investigation of uni-directional causal influences only. Of these, only the set of influences that considered the causal relationships between current cognitive perceptions and future behaviour, in which the former were temporally precedent to the latter, was meaningful while the set of influences that considered the causal relationships between current cognitive perceptions and past behaviour, in which the former were temporally precedent to the latter, was not.

Thus, the temporal positioning of past behaviour as an outcome of current perceptions of self-efficacy, moral disengagement, outcome expectations and intention rather than as a predictor of them led to a fundamental confounding of the true temporal sequence of past behaviour in relation to constructs measured concurrently with it. Bandura's contribution to this confounding, based on his awkward placement of past behaviour in structural models of social cognitive theory, was likely to be instructive to many a researcher looking to understand his take on the temporal sequences in social cognitive models in the empirical research in the light of there not being much guidance in his theoretical presentations on how the social cognitive constructs were meant to causally influence each other. In this study, this erroneous conceptualisation of past behaviour as an outcome of current perceptions will not be perpetuated. Instead, the author will correctly position past behaviour as temporally precedent to current perceptions of moral disengagement and self-efficacy which, in turn will be treated as temporally precedent to future behaviour. The rectification of the temporal position of past behaviour in the exploration of moral disengagement's interaction with behaviour over time will be discussed in more detail in the research questions chapter.

(ii) *Lack of clarity about what constituted an optimal time-lag and uncertainty about how to determine a meaningful time-lapse for the unfolding of causes and effects*

The accommodation of temporality in the empirical studies through the use of longitudinal research designs served as an acknowledgement that causes and their effects did not emerge simultaneously and instantaneously but rather unravelled over time (Bandura, 1986). However, Bandura (1986) did not comment on what time periods were necessary for causes and their effects to unfold or on how to determine an optimal time lapse for investigating the temporal sequence of phenomena. At best he offered the general comment that "time lags between causal events will vary for different activities" (Bandura, 1986; p. 25). The optimal way to incorporate time into empirical tests of structural models of social cognitive theory was, therefore, open to interpretation and in the absence of a clear set of criteria guiding its inclusion, Bandura's (1986) theory ran the risk of being rendered untestable. Thus, while it was clear that time played a role in the temporal sequencing of social cognitive variables which had important implications for the research design strategies used to empirically investigate social cognitive theory, it was not clear how much time should be allowed to lapse in the investigation of different phenomena casting doubts over how the variable of time should be purposefully incorporated into research design strategies to facilitate the meaningful exploration of human behaviour. The lack of clarity about what constituted an optimal time-lapse and about how to determine a meaningful time-lapse will be explored later in the research questions section in relation to the specific research aims and questions in this study.

2.4 General empirical research on moral disengagement

This study was explicitly geared towards understanding Bandura's (1986) social cognitive theory. Therefore, when points of uncertainty emerged during the review of Bandura's (1986) theoretical presentation, pertaining to the lack of a clear and consistent set of building blocks for predicting human behaviour and the lack of clarity about how the constituent components interacted in a predictable way as part of an integrated framework, the author looked to empirical research in which Bandura was credited as an author as the first logical step to understand how Bandura himself envisaged that these gaps ought to be operationally managed when the theory was applied to the explanation of human behaviour in real-world settings. Moral disengagement constituted the focal variable in this study and the author was interested in understanding its dimensionality and how it interacted with other social cognitive variables (specifically proficiency-based self-

efficacy, intention, and past and future behaviour). Thus, when specific questions pertaining to its dimensionality and interactions emerged, the author, once again, looked first to Bandura's published papers for clarity. When this examination did not yield adequate insight, the author embarked on a review of the general empirical research undertaken by researchers other than Bandura, in an attempt to derive answers to these points of uncertainty. This necessarily led the author to empirical research about instances of antisocial behaviour because it was only in antisocial contexts that moral disengagement was uniquely activated. This section offers a brief review of the general empirical research about the moral disengagement construct and highlights how the problems in Bandura's empirical attempts at researching the moral disengagement construct and social cognitive theory generally appeared to be shared by the empirical research conducted by other researchers.

The first similarity was that moral disengagement was not consistently included as a predictor of antisocial behaviour. It was noted earlier that Bandura himself did not consistently include moral disengagement into the predictive equation for explaining antisocial conduct. However, in the studies that excluded moral disengagement, Bandura and his associates consistently included self-regulatory efficacy as a predictor (Caprara et al., 1998; Caprara et al., 2002; Bandura et al., 2003). The close relationship between moral disengagement and self-regulatory efficacy was explored earlier. Essentially, it appeared that the presence of high levels of moral disengagement seemed to imply the absence or low levels of self-regulatory efficacy while the presence of high levels of self-regulatory efficacy appeared to support the absence or low levels of moral disengagement. Thus, it seemed that Bandura recognised that either moral disengagement or self-regulatory efficacy (when moral disengagement was absent) or both moral disengagement and self-regulatory efficacy were important predictors of antisocial behaviour. Therefore, when the researchers who excluded moral disengagement from the predictive equation in their attempts to predict the use of harmful substances such as nicotine (Collins & Ellickson, 2004; Van Zundert, Nijhof & Engels, 2009), tobacco (Wiium & Aarø, 2011) and alcohol (Dijkstra, Sweeney & Gebhardt, 2001) also excluded self-regulatory efficacy, the author questioned the utility of their attempts at predicting these instances of antisocial behaviour. It is possible that, because Bandura (1986) was not clear about what constituted the building blocks of social cognitive theory in his theoretical presentation, in their interpretations of social cognitive theory, these researchers could have missed the centrality and uniqueness of moral disengagement to understanding antisocial behaviour. Further, they could have missed the importance of catering for self-regulatory efficacy as a predictor of antisocial behaviour when moral disengagement was absent as alluded to in the

empirical research by Bandura and his colleagues (Caprara et al., 1998; Caprara et al., 2002; Bandura et al., 2003). Thus, it seemed that these researchers excluded moral disengagement and self-regulatory efficacy from the predictive equation even though the inclusion of one or both of these constructs could have aided in predicting the use of nicotine, tobacco and alcohol. In so doing, these researchers may have missed the opportunity to contribute meaningfully to the prediction of these specific types of self-destructive behaviours in relation to which other researchers (Dijkstra, 2009; Kleinjan, van den Eijnden & Engels, 2009; Kleinjan, van den Eijnden, Dijkstra, Brug and Engels, 2006) did recognise the role of disengagement beliefs, which reflected the rationalisations individuals used justify these types of behaviours even though they were acknowledged as being harmful to their health, as an important predictor.

A second similarity was that researchers (Claybourn, 2011; South & Wood, 2006; Nyati, Eyaa & Ngoma, 2010; Stevens, Deuling & Armenakis, 2012; Hyde, Shaw & Moilanen, 2010; Richmond & Wilson, 2008; Paciello, Fida, Tramontano, Lupinetti & Caprara, 2008; Obermann, 2011a; 2011b) tended to conceptualise moral disengagement as a uni-dimensional construct which catered for all eight mechanisms in the same way that Bandura et al. (1996a; 2001b) did. In these studies, a composite moral disengagement score was derived by aggregating all the items in the multiple-item scales. However, while Bandura et al. (1996a; 2001b), attempted to analyse the factor structure of their moral disengagement scale using exploratory factor analysis, many researchers merely assumed the uni-dimensionality of their moral disengagement scales based on previous research without empirically testing it using either exploratory or confirmatory factor analysis (Claybourn, 2011; South & Wood, 2006; Nyati et al., 2010; Stevens, Deuling & Armenakis, 2012). There were, however, some exceptions. Obermann (2011a; 2011b) used confirmatory factor analysis to establish the uni-dimensionality of the moral disengagement scale while Paciello et al. (2008) tested moral disengagement as both an eight-factor and a single-factor construct and found support for a uni-dimensional conceptualisation using exploratory factor analysis. Hymel, Rocke-Henderson and Bonnano (2005) also tested the dimensionality of the moral disengagement construct, but they used principal components exploratory factor analysis, and also found support for a uni-dimensional conceptualisation.

Bandura and his colleagues did not seem overly pre-occupied with examining the dimensionality of the moral disengagement construct. When they did examine the issue of dimensionality, this tended to be done in the context of studies which had other broader objectives (Bandura et al., 1996a; 2001b). This trend certainly seemed to have been carried over into some of the studies by

other researchers (Paciello et al., 2008; Obermann, 2011a; 2011b; Hymel, Rocke-Henderson & Bonnano, 2005), but there were other studies that deviated from this trend and specifically undertook to examine the dimensionality of moral disengagement in the context of constructing scales to measure it (Caprara, Fida, Vecchione, Tramontano & Barbaranelli, 2009; Moore, Detert, Treviño, Baker & Mayer, 2012; Boardley & Kavussanu, 2007; Boardley & Kavussanu, 2008; McAlister, 2001; Jackson & Sparr, 2005; Pelton, Gound, Forehand & Brody, 2004). The dimensionality of moral disengagement will be explored later in Chapter 4. This discussion informed the specific research questions that were formulated to investigate the dimensionality of moral disengagement in this study.

When moral disengagement was incorporated as a uni-dimensional predictor of antisocial behaviour in empirical research by Bandura and his colleagues (Bandura et al., 1996a; 2001b), it tended to be defined and operationalised as a variable that was comprised of all eight theoretical mechanisms proposed in social cognitive theory (Bandura, 1986). However, when it was conceptualised as a four-dimensional construct, based on the four points in the self-regulation process at which the eight moral disengagement mechanisms were likely to be activated, some mechanisms were omitted with no clear theoretical rationale for why this was deemed necessary. Osofsky et al. (2005) excluded the euphemistic labelling and attribution of blame mechanisms while McAlister et al. (2006) omitted the attribution of blame mechanism only. A similar tendency to omit some mechanisms of moral disengagement was noted in empirical studies by other researchers (Pelton et al., 2004; McAlister, 2001; d'Arripe-Longueville, Corrion, Scoffier, Roussel & Chalabaev, 2010; Lucidi, Zelli, Mallia, Grano, Russo & Violani, 2008; Gini, 2006; Shu, Gino & Bazerman, 2011; McAlister, Sandström, Puska, Veijo, Chereches & Heidmets, 2001). As with Bandura and his colleagues, the reason for these omissions was not clear. However, unlike Bandura and his colleagues, these researchers did not only omit mechanisms when moral disengagement was conceptualised as a four-factor construct. They also excluded selected mechanisms when moral disengagement was operationalised as a uni-dimensional variable.

A review of the general empirical research on moral disengagement revealed that it was not consistently conceptualised as a generalised, global construct consisting of all eight mechanisms (or at least most of them), as was the case in the empirical research by Bandura and his colleagues (Bandura et al., 1996a; 2001b). Instead, some researchers undertook to investigate the impact of specific moral disengagement mechanisms as predictors of different types of unethical behaviour

in various contexts. The rationale here was that some mechanisms may be more relevant for rationalising unethical behaviour in certain contexts while other mechanisms may be more relevant for understanding detrimental behaviour in other situations. In order to capture the relevance of specific moral disengagement mechanisms for rationalising different types of behaviour, this avenue of research was likely to be more useful than the examination of the predictive utility of moral disengagement as a global measure of transgressive behaviour in general. The relevance of moral justification was tested for rationalising violent retaliation towards those responsible for the 9/11 terror attack; advantageous comparison was examined as the justification for abusing Iraqi prisoners (Aquino, Reed, Thau and Freeman, 2007); displacement of responsibility was examined as the mechanism used to understand individuals' leadership beliefs when they opted to justify their unethical behaviour by shifting responsibility onto the leaders who requested or condoned their behaviour (Hinrichs, Wang, Hinrichs and Romero, 2012); and moral justification and displacement of responsibility were identified as the strategies individuals drew on to rationalise unethical behaviour at work (Barsky, 2011). While the author believes that there is a place for both treatments of moral disengagement in the empirical research depending on the research objectives, this study will examine moral disengagement in the same way that Bandura and his colleagues tended to conceptualise it in their empirical research, as a generalised, global construct, in order to comment on its dimensionality and likely temporal sequences with other constructs in the context of a structural model of social cognitive theory.

A third similarity between the empirical research by Bandura and his colleagues (Bandura et al., 1996a; 2001b; McAlister et al., 2006) and the general empirical research including the moral disengagement construct was the examination of the interactions between moral disengagement and other social cognitive variables in the context of structural equation and mediation models (Boardley & Kavussanu, 2009; Hodge & Lonsdale, 2011; Farnese, Tramontano, Fida & Paciello, 2011; Richmond & Wilson, 2008; Passini, 2012; Hyde et al., 2010; Jackson & Gaertner, 2010; Alnuaimi, Robert, & Maruping, 2010; Zelli, Mallia & Lucidi, 2010; Lucidi et al., 2008; d'Arripe-Longueville et al., 2010). It is important to note that not all the studies that examined moral disengagement, researched it in the context of structural equation or mediation models (Gini, 2006; Shu et al., 2011; Perren & Gutzwiller-Helfenfinger, 2012; Hymel et al., 2005; Paciello et al., 2008; Obermann, 2011a; 2011b; Ntayi et al., 2010; Vollum, Buffington-Vollum & Longmire, 2004; Barchia & Bussey, 2011). In these studies, it was generally only possible to comment on the likely interaction between moral disengagement and one dependent variable at a time. This

was usually behaviour, but there were exceptions. For example, Vollum et al. (2004) examined moral disengagement as a predictor of violent attitudes towards animals instead of actual behaviour. Moral disengagement was generally conceptualised as a predictor of unethical or transgressive behaviour in these studies which usually drew on cross-sectional research designs. Thus, it was technically not possible to comment on the causal impact of moral disengagement on behaviour in these contexts. In the longitudinal studies by Paciello et al. (2008) and Barchia and Bussey (2011), however, it was possible to comment on a likely causal sequence between moral disengagement and behaviour. In their hierarchical regression analysis, Paciello et al. (2008) found that moral disengagement played an important predictive role in the examination of aggressive and violent behaviours. The longitudinal nature of this study facilitated the conclusion that moral disengagement was likely to exert a causal influence on, and was, consequently, likely to temporally precede, aggressive and violent behaviour. This finding was supported in a study by Barchia and Bussey (2011) who found that while the social cognitive processes (including moral disengagement, aggression efficacy and collective efficacy) appeared to causally impact future aggressive behaviour, the reverse relationship in which past behaviour impacted moral disengagement and the other social cognitive processes, was not supported.

Similarly, it was only technically possible to comment on the likely temporal sequences and interactions between moral disengagement and the other social cognitive variables in the studies that used longitudinal research designs, rather than cross-sectional research designs, to research structural equation or mediation models aimed at predicting transgressive behaviour. In the longitudinal study by Bandura et al. (2001b) in which a structural model of social cognitive theory was used to predict transgressive behaviour, moral disengagement at Time 1 was positioned as temporally precedent to intention at Time 1 and future behaviour at Time 2. These temporal sequences were mirrored in the models tested by Lucidi et al. (2008) and Zelli et al. (2010) in the context of their longitudinal studies which used social cognitive theory to understand doping use among adolescents. In a longitudinal study that examined the developmental precursors of moral disengagement and the role of moral disengagement in the development of antisocial behaviour in children at different stages of their development as they transitioned into adolescence, moral disengagement was found to be a significant predictor of antisocial behaviour, suggesting that it was likely to temporally precede and exert a causal influence on antisocial conduct.

While Bandura et al. (2001b) depicted self-regulatory efficacy and proficiency-based self-efficacy as temporally precedent to moral disengagement in their study, there was technically no empirical basis for this claim because both these variables were measured concurrently at Time 1. Therefore, it seemed that the proposed temporal sequence between the various facets of self-efficacy and moral disengagement, were rooted more in theory than in science. However, unlike Bandura et al. (2001b), Zelli et al. (2010) and Lucidi et al. (2008) did not propose a temporal sequence between their concurrently measured moral disengagement and self-regulatory efficacy variables, resulting in their relationship being depicted as correlational, not causal, in these studies. Moral disengagement and self-regulatory efficacy were conceptualised, individually, as temporally precedent to intention at Time 1 and future behaviour at Time 2 (Zelli et al., 2010; Lucidi et al., 2008).

Interestingly, Zelli et al. (2010) reported administering identical questionnaires at Time 1 and Time 2, suggesting that they may have been able to comment on the likely temporal sequence between moral disengagement and self-regulatory efficacy. However, if they had examined the temporal sequence between these constructs, then it would not have been possible to also comment on the temporal sequences between moral disengagement and future behaviour and self-regulatory efficacy and future behaviour using only two assessment waves. At least three, and possibly more, measurement points would have been required. Since this was not catered for in their study, these researchers had to be selective about which temporal sequences (that could be meaningfully investigated in the context of two assessment waves) to focus on. In their study, they seemed to regard the interactions of the individual social cognitive predictors measured at Time 1 (viz. attitudes toward doping use, subjective norms, perceived behavioural control, doping self-regulatory efficacy, doping moral disengagement) with intention (measured at Time 1) and behaviour (measured at Time 2) as more in line with their research objectives. This precluded the simultaneous examination of the temporal sequence between moral disengagement and self-regulatory efficacy in a meaningful way in the context of only two assessment waves.

Bandura et al. (2001b) included proficiency-based self-efficacy as one element of their multi-faceted self-efficacy variable (which also incorporated a self-regulatory efficacy facet and a social self-efficacy component). In the absence of clear empirical evidence to support it, this variable was positioned as temporally precedent to moral disengagement. What was more interesting about the proficiency-based self-efficacy variable, however, was that it tapped into the proficiency to engage in prosocial academic behaviour while the ultimate dependent variable in

the structural equation model was antisocial transgressive behaviour. Therefore, it was not unsurprising that Bandura et al. (2001b) found an inverse relationship between proficiency-based academic self-efficacy at Time 1 and transgressive behaviour at Time 2. The author argued earlier that this raised an interesting question about whether or not the temporal sequence between proficiency-based self-efficacy and moral disengagement was likely to be conceptualised in the same way if the proficiency the former variable tapped into was more aligned with the ultimate dependent variable and captured the proficiency to engage in antisocial behaviour rather than prosocial behaviour. This question remained pertinent because none of the general empirical research reviewed in this section seemed to cater for a proficiency-based self-efficacy variable which precluded the empirical examination of its likely temporal sequence with moral disengagement in these studies.

Bandura et al. (1996a; 2001b) introduced confusing temporal sequences between moral disengagement and past behaviour in which current perceptions of moral disengagement were depicted as temporally precedent to behaviour that had already occurred in the past. Zelli et al. (2010), on the other hand, positioned past behaviour as temporally precedent to future behaviour but did not appear to cater for the impact of past behaviour on moral disengagement. It would have been meaningful to consider the causal influence of past behaviour on current perceptions of moral disengagement but this interaction was not explicitly considered or empirically explored in the study by Zelli et al. (2010).

The interactions between moral disengagement (as the focal variable in the present study) and other social cognitive constructs (specifically, intention, behaviour and proficiency-based self-efficacy) will be examined in this study. The specific research questions that were formulated to explore these interactions are presented in Chapter 4.

2.5 Conclusion

This chapter presented a theoretical review of Bandura's (1986) social cognitive theory as a framework for explaining human behaviour. Its unique contributions to understanding behaviour in the form of theoretical principles such as reciprocal determinism and measurable constructs such as moral disengagement (Bandura, 1986) set social cognitive theory apart from other theories in the social psychological domain (viz. theories of reasoned action, planned behaviour and interpersonal behaviour). However, in spite of its many strengths, this review highlighted

major gaps in Bandura's (1986) conceptualisation of social cognitive theory. Underlying these shortcomings were questions about whether or not it was an empirically testable theoretical framework. Doubts about its empirical testability emerged initially as a philosophical consideration (Smedslund, 1978a; 1978b) but evolved into tangible practical problems limiting its potential to be investigated as a unified, stable, consistent and generalisable model of human behaviour.

The first shortcoming that inhibited social cognitive theory's empirical testability was the lack of a clear set of building blocks for explaining behaviour. In an attempt to answer the question of what constituted its basic building blocks, the author reviewed Bandura's theoretical and empirical published work. This exploration yielded two different sets of variables; one for explaining prosocial behaviour and the other for understanding antisocial conduct. The first set consisted of self-efficacy, outcome expectations, facilitators and impediments, intention and behaviour for predicting instances of prosocial behaviour and the second consisted of the same variables in the first set augmented by moral disengagement for explaining instances of antisocial behaviour. Moral disengagement's role as a unique building block of structural models of social cognitive theory for predicting antisocial behaviour earned it a central place in this study. A theoretical review of the construct as it was defined by Bandura (1986), and a comparison of it with other theoretical constructs such as the techniques of neutralisation (Sykes & Matza, 1957), cognitive dissonance (Festinger, 1957) and obedience to authority (Milgram, 1974), highlighted moral disengagement's intricacies and complexities as a unique social cognitive predictor. A key criticism of Bandura's (1986) conceptualisation of moral disengagement, emanating from this review, was the uncertainty surrounding its dimensionality. The dual portrayal of moral disengagement as an eight-dimensional construct which could also be abstracted to a four-dimensional one raised questions about whether Bandura (1986) recognised it as more optimal as an eight or four-factor variable. This uncertainty was exacerbated when moral disengagement was operationalised as a unitary construct in empirical research (Bandura et al., 1996a; 2001a). The possibility that it could be more predictive as a unitary construct and not as the multi-dimensional construct it was originally theoretically conceptualised as introduced further complexity to the existing lack of clarity about its dimensionality. The first main aim of this study was to examine moral disengagement's dimensionality.

The second limitation which inhibited social cognitive theory's empirical testability was the lack of a comprehensive explanation of how its building blocks were expected to cohere and interact

with each other in consistent and predictable patterns in the context of integrated structural models for explaining behaviour. Bandura (1986) explicitly commented on a smattering of disjointed interactions between isolated social cognitive constructs and failed to offer a comprehensive treatment of how all the constituent components worked together in predictable causal sequences as a holistic theory. The first conceptual attempts to link the social cognitive constructs in an integrated structural model, encountered by the author, was in relation to explaining personal and organisational performance accomplishments and health promoting behaviour (Bandura, 2000; 2004a). However, due to their prosocial orientation, these attempts necessarily excluded moral disengagement as a predictor and, consequently, did not feature its interactions with the other social cognitive constructs. It was, thus, to the empirical research about instances of antisocial behaviour, which included moral disengagement that the author turned to gain insights into these interactions. While this exploration highlighted important questions about moral disengagement's temporal precedence in relation to the other social cognitive constructs in structural models aimed at predicting antisocial behaviour and about the directionality of its causal relationships with these variables, it was not feasible to explore all these questions and points of contention in this study. The treatment of past behaviour as an outcome of moral disengagement in cross-sectional and longitudinal studies instead of as a causal contributor to it raised questions about the temporal precedence of moral disengagement and past behaviour. This served as the impetus for investigating moral disengagement's causal relationship with behaviour in this study. As a side-effect of this exploration, due to intention's close relationship with behaviour, the temporal precedence between moral disengagement and intention was also considered. The lack of clarity about moral disengagement's temporal precedence in relation to proficiency-based self-efficacy in the empirical research served as the impetus for exploring the temporal precedence between moral disengagement and proficiency-based self-efficacy (related to the proficiency to engage in antisocial behaviour) and for understanding whether the relationship between these variables was positive or negative. The second aim of this investigation was to explore these specific interactions. The author acknowledged the methodological implications of undertaking an exploration of these interactions in the present study in terms of employing a longitudinal research design and catering for bi-directional influences to accommodate the internal structural properties of reciprocality and temporality in social cognitive theory (Bandura, 1986). Specifically, the common pitfall of treating past behaviour as an outcome of current perceptions of moral disengagement, self-efficacy, outcome expectations and intention was actively avoided by positioning past behaviour as a prelude to (i.e. as temporally precedent to) these current perceptions and to future behaviour, and questions about

what constituted an optimal time-lapse and how to determine what an optimal time-lapse should be in the present longitudinal investigation were considered.

Thus, this study's main research aims emanated from an examination of the two major theoretical criticisms levelled against social cognitive theory. The preceding discussion highlighted how each of these theoretical shortcomings diminished social cognitive theory's empirical testability as a consistent, standardised and generalisable framework for explaining human behaviour. It was noted earlier that if the basic building blocks of a theory and the interactions between them are not predictable and are open to interpretation, as was shown to be the case in social cognitive theory, then empirically testing its utility as a single consistent framework is likely to be difficult, if not impossible. It was unclear if Bandura (1986) ever intended for social cognitive theory to take the form of a perfectly consistent paradigm that drew on a standardised set of variables which interacted with each other in predictable ways to explain human behaviour. However, in order to explore the gaps in social cognitive theory pertaining to the two main research aims identified in this discussion, it was imperative to render social cognitive theory into a consistent, empirically testable theoretical framework. To this end, the author conceptualised it as a framework represented by a standard set of building blocks for explaining prosocial and antisocial behaviour which interacted with each other in consistent and predictable ways as an integrated theory. In support of this conceptualisation, the author derived a likely standard set of social cognitive building blocks from Bandura's (1986) theoretical and empirical presentations and attempted to piece together how these variables interacted with each other in cohesive and predictable ways.

Of specific interest in this investigation was the moral disengagement construct and in particular, understanding its dimensionality and how it interacted with select social cognitive variables (intention, behaviour and self-efficacy) was paramount. The specific research questions this study will attempt to answer flowed directly from these two broad research aims and will be discussed in detail in the research questions chapter. It is important to note that in this study the author endeavoured to make research design choices that remained sensitive to the structural properties of reciprocality and temporality in social cognitive theory (Bandura, 1986) by using longitudinal research designs and by catering for bi-directional influences between relevant social cognitive variables in order to conduct a meaningful exploration of the interactions between moral disengagement and intention, behaviour and self-efficacy. The methodological considerations that were built into the execution of this study to facilitate the attainment of the research aims will be

explored in the research questions chapter and the specific steps the author took to avoid the pitfalls associated with the use of longitudinal research designs and to cater for the intricacies of its application in the context of this study will also be discussed. It is important to note that it was never within the scope of this study to empirically examine a complete structural model of social cognitive theory (including moral disengagement) for explaining antisocial behaviour. However, the narrower exploration of moral disengagement's dimensionality and interactions with intention, behaviour and self-efficacy was intended to offer insights about how moral disengagement could be accommodated in a broader structural model and how it could be positioned in relation to intention, behaviour and self-efficacy as a starting point from which to begin building a picture of how the social cognitive constructs ought to interact with each other in the context of a complete structural model for explaining antisocial behaviour.

It was noted in this chapter that moral disengagement is exclusively activated in antisocial contexts to facilitate the prediction of antisocial behaviour. The centrality of moral disengagement to the research aims, therefore, necessitated the selection of an antisocial phenomenon as the subject of this investigation to elicit the activation of moral disengagement so that it could be empirically researched. Ethical considerations, implications and challenges arising from researching antisocial behaviours such as aggression, violence and other examples of heinous criminal behaviour guided the author away from conventional instances of deviance that resulted in grievous harm to others towards a fairly non-threatening context in which antisocial behaviour and the social cognitive variables, particularly moral disengagement, could be productively researched and understood. Software piracy was identified as a specific instance of antisocial behaviour that was fairly innocuous. Consequently, the context of software piracy served as a relatively harmless setting in which to research the activation of moral disengagement since piracy behaviour did not typically lead to direct grievous harm to others when compared to other types of deviant behaviour. Thus, for the purposes of this investigation, software piracy constituted the specific instance of antisocial behaviour the author leveraged to empirically explore moral disengagement's dimensionality and interactions with intention, behaviour and self-efficacy. In the next chapter, the author will introduce software piracy as an instance of antisocial behaviour and will first conduct a general review of the empirical research that has been conducted in this domain. Thereafter, the discussion will specifically focus on how social cognitive theory has been applied to software piracy with a view to understanding how moral disengagement was operationalised in these empirical endeavours, how it interacted with the intention, behaviour and self-efficacy constructs in the context of the structural models that were

reviewed and how the methodological implications of catering for reciprocality and temporality through longitudinal research designs and bi-directional influences were accommodated in previous empirical research that applied social cognitive theory to the prediction of software piracy behaviour.

CHAPTER 3: SOFTWARE PIRACY

3.1 Introduction

The previous chapter highlighted moral disengagement as the focal theoretical variable in this study. Essentially, this study required an antisocial context to activate moral disengagement so that it could be empirically investigated. Software piracy was identified and selected as the specific instance of antisocial behaviour in which moral disengagement was elicited so that it could be productively researched in this investigation. In this chapter the author will undertake a conceptual review of software piracy which will offer a definition of the phenomenon, highlight its global prevalence and impact, comment on the extent to which it has been moralised through the use of sinister discourse, and present a theoretical perspective of software piracy through the lens of social cognitive theory. Thereafter, an empirical review of the software piracy research will be undertaken. This review will focus exclusively on the empirical research that leveraged social psychological theories of human behaviour to explain software piracy and will be presented in two discrete parts. The first will encompass a review of the empirical studies that used the theories of reasoned action, planned behaviour and interpersonal behaviour to understand software piracy. This review will highlight the seeming evolution of software piracy research using these theoretical frameworks by illustrating the incremental benefits that seemed to be realised as researchers progressed from the theory of reasoned action to the theory of planned behaviour, from the theory of planned behaviour to the theory of interpersonal behaviour and finally from the theory of interpersonal behaviour to social cognitive theory. The second part of this review will focus exclusively on the empirical studies that leveraged social cognitive theory to explain software piracy. Specifically, it will focus on how moral disengagement was operationalised (from a dimensionality point of view) in the empirical studies and how it interacted with other social cognitive constructs in the structural models in which it was researched. The previous chapter identified important theoretical gaps in social cognitive theory's moral disengagement construct pertaining to its dimensionality and its interactions with other variables in the broader theoretical framework. In this chapter, the author will explore moral disengagement's dimensionality and interactions with other social cognitive variables in the software piracy research to understand the main findings and to get a sense of the gaps that remained in understanding these issues in the software piracy domain. Ultimately, the theoretical issues pertaining to moral disengagement that emerged from the previous chapter will be

combined with the empirical insights from this one to identify the main gaps around which the research questions in the present study will be formulated. Finally, the practical methodological issues and challenges identified in the empirical software piracy research will be combined with those that emerged from the theoretical presentation in the previous chapter to inform the design of the present study.

3.2 A conceptual review of software piracy

The impact of the information age on human life in the 21st century is shrouded in paradox. While exponential strides in technological advancement have translated into immeasurable benefits, they have also presented unique challenges. One of these is the misappropriation of digital goods; popularly known as software piracy. In this section, the author will undertake a conceptual review of the notion of software piracy. This will include a brief definition of the concept, software piracy's global impact and its manifestation in the local South African context, the moralisation of software piracy through the use of sinister discourse and a theoretical perspective of software piracy through the lens of social cognitive theory. This discussion will explore the phenomenon of software piracy as a specific instance of antisocial behaviour that serves as the context for the investigation of moral disengagement (a unique building block of social cognitive theory for predicting antisocial conduct) in this study.

3.2.1. Defining software piracy

Software piracy, which is the term used to refer to all forms of digital piracy (Cronan & Al-Rafee, 2008) in this study, is defined as the unauthorised copying or distribution of software (Business Software Alliance, 2009) without explicit permission from copyright holders and with no intention to compensate them for the use or dissemination of their intellectual property (Gopal and Sanders, 1998).

3.2.2 Software piracy's global impact and its local manifestation in the South African context

The Business Software Alliance (BSA) conducted research on a global scale to estimate the extent of personal computer (PC) software piracy and the commercial value of unlicensed software. In the ninth annual BSA-IDC global software piracy study, the global piracy rate for PC

software of 42% led to monetary losses of US$63.4 billion among software vendors worldwide in 2011 compared to US$58.8 billion in 2010, with the most significant losses in the Asia-Pacific region (US$20998 million) and the least significant losses in the Middle East and Africa region (US$4159 million). Against this backdrop, South Africa ranked as a country with one of the lower software piracy rates (35%), which translated into losses of US$564 million. Notwithstanding South Africa's status as a country with one of the lowest rates of software piracy in the world, the IDC regarded the phenomenon as one of the most significant impediments to the productive development of the IT industry in the country which detracted from social and economic benefits including fewer employment opportunities and a lower GDP (BSA-IDC, 2010). In the light of these negative consequences, as a proponent of the value of intellectual property, the IDC aimed to reduce the software piracy rate in South Africa from 35% to 25% by 2013. They believed that this initiative would lead to the creation of 1650 hi-tech jobs, contribute $1244 million in new economic activity, and US$132 million in new taxes with an estimated 68% of these benefits remaining in the local economy (BSA-IDC, 2010). There is no question that software piracy has infiltrated the South African context to the extent that the advocates of the value of intellectual property deem it necessary to invest in initiatives to curb its incidence. In the light of this reality, researching software piracy from a uniquely South African viewpoint is relevant both from the practical perspective of enhancing understanding of the phenomenon towards the ultimate goal of curbing it (from the perspective of the proponents of the value of intellectual property) and from the perspective of contributing to the growing global body of theoretical knowledge about software piracy: its antecedents, consequences, and the factors and contexts that sustain it, among other pertinent issues (from an academic perspective).

3.2.3 The moralisation of software piracy

The act of pirating software is an instance of antisocial conduct (Eining & Christensen, 1991) that is considered illegal because it violates intellectual property rights (Gopal & Sanders, 2000) and infringes on copyright laws (Moores & Dhillon, 2000). Typically, when issues are regulated through legislation they may also become the source of ethical dilemmas (Altschuller, 2004) which evoke moral reactions in the form of moral judgements, standards and rules of conduct (Thong & Yap, 1998). This seems to be the case in the domain of software piracy as well. Laws have been developed to protect the interests of the owners of the copyright of digital material. These laws send the clear message that, at a systemic level, the broader social system in which individuals function condemns the unauthorised copying, use and distribution of software.

Individuals have broadly tended to respond to these laws in one of two ways and on the basis of their responses have been classified into two camps which exist at two extremes of a continuum. The first camp consists of individuals who embrace and agree with the copyright laws. They tend to regard software piracy as fundamentally wrong and morally unacceptable because it infringes on the rights of others. The proponents of the value of intellectual property generally fall into the first camp together with individuals from the general public who believe that pirating software is akin to stealing and that stealing is morally wrong. The second camp consists of individuals who disagree with the concept of information ownership and who advocate for the free exchange of information based on the belief that the ultimate objective should be progress and advancement through the free dissemination of knowledge for the greater good rather than the amassing of profits by the owners of the copyright of digital intellectual property for their own individual gain (Himanen, 2001; Hinduja, 2003). In their view, the owners of the copyright of digital intellectual property use their ill-gotten power, influence and monetary resources to influence and shape the laws that govern society in a way that favours and supports their ultimate profit motive and, consequently, they are immoral while the acts of copying, using or distributing copyrighted digital material are not. Hard-core hackers tend to fall into the second camp together with individuals who believe that it is morally acceptable to pirate software because the owners of copyright are immoral and because digital information should be freely available to all in the interests of the greater good (i.e. human progress and advancement). Thus, the rendering of software piracy into a legal issue elicited strong moral reactions from individuals that either denounced or favoured the behaviour and in this way, the legal issue became a moral issue as well.

3.2.4 A menacing portrayal of software piracy through sinister discourse

The term "software piracy" was coined and popularised by advocates of the intrinsic worth of digital intellectual property who generally serve the interests of the owners of copyright of digital material. The use of the word "piracy" is powerful and evocative and conjures up abhorrent images of rampant theft and robbery and a flagrant violation of the rights of others often resulting in grievous bodily harm, tantamount in their intensity to the acts of maritime piracy committed in the days of old, which are also becoming increasingly prevalent in modern times. However, in real terms, the unauthorised copying and distribution of software could, at best, be likened to a form of theft in which nothing tangible is stolen (because the digital material acquired is ethereal in its form and because both parties [the original owners of the copyright of digital intellectual

property or licensed users and the individuals who make unauthorised copies or illegally distribute software that they ought not have access to] still possess the digital commodity even after the "theft" has occurred) (Seale, Polakowski & Schneider, 1998). The most obvious outcome of this behaviour is a loss of profit for the owners and beneficiaries of the copyright of digital material. Not unsurprisingly, it is to them that the framing of software theft as an act of piracy, which produces detrimental (loss of profit for those that own the copyright to digital material) and far-reaching consequences (in the form of loss of social and economic growth potential in nations that struggle to curb software piracy rates), may be attributed. Extensive and persuasive advertising campaigns and media coverage about the wrongfulness of software piracy has rendered it an issue that has inevitably become embedded in the collective consciousness of society. This does not necessarily mean that everyone who has been exposed to these messages agrees that software piracy is morally wrong. In fact, as discussed earlier, there are some groups who have turned this prevalent argument on its head and proposed that it is the owners of copyright and their beneficiaries who are immoral because they charge exorbitant amounts of money for products that should be more accessible to all. But, it does mean that an awareness has been created among all who have been exposed to them that a powerful, influential and well-resourced group in society believes that software piracy is morally wrong and it is their mission to curb this phenomenon. In addition to using strong, emotive language to portray software piracy as a grave social ill, this camp has succeeded in lobbying national governments to formulate laws that render the unauthorised use, copying and distribution of unlicensed software illegal in many parts of the world. Their approach pitches software piracy as a socially prohibited behaviour because of its immorality (it is punted as unethical and fundamentally wrong) and its illegality.

Bandura (1986) recognised that behaviour could be socially prohibited for two sets of reasons. The first pertains to reasons of social convention and the second to reasons of morality and the main criterion used to differentiate between whether a behaviour falls into the social convention domain or the moral imperative category is the gravity of its consequences. Traditionally, conduct that results in serious injurious consequences is socially prohibited for reasons of morality. Sometimes, though, behaviour that is socially prohibited for reasons of social convention (i.e. conduct adopted for social convenience, for the benefit of the larger group, to serve the interests of those in powerful positions in society or because of the inherent harmfulness of the behaviour itself) may cause some harm to or violate the rights of others but the severity of the consequences of this behaviour overall may be less intense when compared to behaviour that is socially prohibited for moral reasons. It was noted earlier that one of the most obvious consequences of

software piracy was a loss of profit. While this appears to be a violation of the rights of those to whom the profits are meant to accrue, it appears to be a comparatively minor one because no one is grievously harmed in the process. However, emphasis on the less obvious and unseen consequences of software piracy, captured in the alleged loss of social and economic growth potential by the proponents of the value of digital intellectual property, appears to be a direct attempt to exaggerate its injurious consequences. This moves software piracy out of the domain of being socially prohibited because it serves the interests of a dominant and powerful group in society and mildly morally-charged due to losses in profit (a relatively minor violation of others' rights), to being a full-blown moral imperative that grossly violates human rights by denying people the opportunity to earn a living by depleting the number of jobs that an economy can support and sustain. Thus, it is through a combination of the use of highly emotive language to portray software piracy as a social evil, extensive media campaigns to highlight its wrongfulness, the drafting of laws to formally prohibit its enactment, and the legal enforcement of punishment for contravening copyright laws and infringing on intellectual property rights, that software piracy has been demonised by the owners of copyright of digital software and their beneficiaries in their efforts to curb the phenomenon and protect their interests.

3.2.5 Understanding how to curb software piracy from the perspective of social cognitive theory

The Business Software Alliance (BSA) proposed four main strategies for reducing software piracy in the latest global software piracy study conducted in 2011 (Business Software Alliance, 2011). Their first proposal was to increase public awareness and education campaigns. Second, they suggested modernising intellectual property laws to account for and keep pace with new technological developments. Their third proposal was to improve the enforcement of these laws through the use of dedicated and better equipped resources. Fourth and finally, they suggested that governments, as the largest users of software in the world, lead by example by using only licensed software to encourage their national populations to follow suit. From the perspective of social cognitive theory, there are two types of sanctions that could be used to deter the enactment of antisocial behaviour (which software piracy has been categorised as an instance of in this investigation). The first are external sanctions which Bandura (1991a) argued are relatively weak deterrents of antisocial behaviour and the second are self-sanctions or internalised controls which he maintained are more effective regulators of moral conduct. An examination of the BSA's strategies for reducing software piracy revealed that they were all fundamentally premised on

deterrence (external sanctions) because of the probability of detrimental external consequences or punishments such as legal prosecution or punitive action due to non-compliance. Bandura (1991a) maintained that external sanctions are relatively weak deterrents of antisocial conduct because most instances of deviance are likely to go undetected by the mechanisms that exist to enforce and prosecute them. Thus, the BSA's strategies for reducing software piracy are unlikely to serve as effective deterrents that discourage individuals from engaging in the behaviour to the extent that there is a significant reduction in global software piracy rates. In fact, despite the repeated use of strategies such as these through the years, which have leveraged external sanctions to curb software piracy, it remains rampant in the global arena (Moores & Dhillon, 2000; Gopal & Sanders, 2000; Business Software Alliance, 2011).

Self-sanctions or internalised controls, on the other hand, are more effective regulators of moral conduct because people continue to self-regulate their behaviour even when there are no dire external threats to serve as potential deterrents (Bandura, 1991a). It is possible, therefore, that software piracy, as an instance of antisocial conduct, may be more strongly regulated by internal or self-sanctions than by external ones (in the light of evidence which suggests that despite the institution of specific external sanctions to deter software piracy, it remains rampant). This implies that in order to understand how to curb the phenomenon, it may be more instructive to examine self-sanctions and their role in deterring individuals from engaging in software piracy behaviour. In other words, the self-regulation process should be researched to specifically understand what motivates individuals to behave congruently with their internal moral standards (i.e. moral engagement) and leads them to select prosocial behavioural options instead of antisocial ones. An interesting aspect of social cognitive theory was the moral disengagement construct; the activation of which allowed individuals to override their internal moral standards by reconstruing behaviour as being in the service of honourable and beneficial personal and social ends, so that they could justify engaging in antisocial conduct to themselves (Bandura, 1986). This notion of moral disengagement added a fascinating new dimension to the research of the activation of internal moral standards to curb the incidence of antisocial behaviour because it proposed a means through which individuals could convince themselves that what they previously may have deemed antisocial was actually not and it was, therefore, acceptable to engage in such behaviour. To understand the role of this complex psychological process for predicting software piracy as a specific instance of antisocial behaviour in this study, the author turned to the empirical literature that leveraged psychological theories of human behaviour to explain software piracy with the expectation that these would accommodate self-regulation of

internal standards in the predictive equation. Interestingly, of the four popular psychological theories used to explain software piracy (viz. the theories of reasoned action, planned behaviour, interpersonal behaviour and social cognitive theory), only two acknowledged the self-regulation process (viz. the theory of interpersonal behaviour and social cognitive theory) and ultimately, only social cognitive theory catered for a specific construct through which the process of overriding internal sanctions could be effected (viz. moral disengagement – the focal variable of interest in this study). A brief review of the empirical software piracy research leveraging all the popular psychological theories of human behaviour will be conducted next.

3.3 A review of the empirical literature on software piracy using psychological theories of human behaviour

A review of the software piracy literature has revealed three overarching trends. The first has been to understand the phenomenon from an individual determinants perspective by examining the impact of demographic factors such as age, gender, socioeconomic status and frequency of computer use (amongst others) on software piracy intentions and behaviour and by reviewing the factors that motivated individuals to pirate software (Acilar, 2010; Cheng, Sims & Teegen, 1997; Cronan & Douglas, 2006; Goode & Cruise, 2006; Hinduja, 2003; Lau, 2006; Leonard, Cronan & Krie, 2008; Lending & Slaughter, 1999; Simpson, Banerjee & Simpson, 1994; Sims, Cheng & Teegen, 1996; Siponen & Vartiainen, 2007; Rahim, Rahman & Seyal, 2000; Van Belle, Macdonald & Wilson, 2007; van der Byl & Van Belle, 2008; Young, Zhang & Prybutok, 2007). The second trend in the literature has been to consider the impact of contextual determinants such as interpersonal interactions (Glass and Wood, 1996; Tang and Farn, 2005), industry sector (Mishra et al., 2007), organisation culture (Lending and Slaughter, 1999) and economic, national culture and legal factors in the broader context of globalisation on software piracy (Husted, 2000; Phukan and Dhillon, 2001; Kovacic, 2007). Individuals influence and are influenced by the contexts in which they operate which suggests that neither individual nor contextual determinants of software piracy on their own are likely to provide a comprehensive basis from which to understand, explain and research the phenomenon. Researchers, therefore, drew on more holistic theoretical models which typically captured both the individual and contextual aspects of software piracy to greater or lesser extents. This constituted the third trend in the empirical software piracy research. Numerous models and theoretical frameworks have been proposed from fields ranging from economics and law to ethics and psychology. From an economic perspective, theories such as equity theory (Glass and Wood, 1996), network externalities and information

cascades (Joe et al., 2010) were drawn on; from a justice perspective, deterrence theory (Peace et al., 2003) was used; from an ethical perspective ethical decision-making models (Thong and Yap, 1998; Cronan and Douglas, 2006) were leveraged and from a psychological perspective theories of human behaviour from the social psychological domain have been applied.

Some of social psychology's popular, general models of human behaviour such as the theory of reasoned action (Eining & Christensen, 1991; Christensen & Eining, 1991; Al-Jabri & Abdul-Gader, 1997; Woolley & Eining, 2006), the theory of planned behaviour (Chang, 1998; Kwong & Lee, 2002; Peace, Galletta & Thong, 2003; Cronan & Al-Rafee, 2008), the theory of interpersonal behaviour (Limayem, Khalifa & Chin, 2004; Robinson, 2010) and social cognitive theory (Kuo & Hsu, 2001; LaRose & Kim, 2007; Jacobs et al., 2012; Garbharran & Thatcher, 2009; Garbharran & Thatcher, 2011; Rogers, 2001; Wentzell, 2006; Wentzell, 2008), have been used to examine the factors that influence and predict intentions to pirate software and software piracy behaviour. In this section the empirical research using the psychological theories of human behaviour (theory of reasoned action, theory of planned behaviour, theory of interpersonal behaviour, social cognitive theory) to explain software piracy will be critically reviewed. The review will focus on the range of variables included as predictors in the context of each theoretical paradigm, how these variables were defined and operationalised, the dependent variables the studies were committed to explaining, the research design strategies used and their implications and the interactions and temporal sequences suggested and supported by the empirical evidence. Research on software piracy using social cognitive theory necessarily constituted the main focus of this review.

3.3.1 Theory of reasoned action in software piracy research

The theory of reasoned action envisaged individual attitudes and subjective norms as antecedents to intention which, in turn, was a prelude to behaviour (Fishbein & Ajzen, 1975). The application of the theory of reasoned action to explaining software piracy revealed that attitudes and social pressures both had a direct influence on software piracy intentions (Al-Jabri & Abdul-Gader, 1997) and behaviour (Eining & Christensen, 1991; Christensen & Eining, 1991; Woolley & Eining, 2006). The empirical findings from multiple regression analyses suggested that attitudes were a more influential determinant of intention and behaviour than social pressures. Al-Jabri and Abdul-Gader (1997) found that attitudes (labelled individual beliefs) explained a larger percentage of the variance in behavioural intention than social pressures (labelled peer beliefs)

(29.1% versus 8.6 % for in-house developed software packages; 12.7% versus 3.2% for off-the-shelf packages) while Christensen and Eining (1991) found that attitudes towards software piracy accounted for 51% ($p < 0.001$) of the variance in reported software piracy behaviour as opposed to subjective norms which only accounted for 13% ($p < 0.015$). Woolley and Eining (2006) found that attitudes towards software piracy accounted for 50% ($p < 0.001$) of the variance in piracy behaviour while subjective norms surrounding software piracy accounted for 33% ($p < 0.05$). An aggregated variable consisting of attitudes towards software piracy behaviour and social pressures (labelled norms) cumulatively explained 36% of the variance in the amount of software individuals admitted they pirated (Eining & Christensen, 1991) but this study did not separate out the effects of attitudes and social pressures. In addition to their multiple regression analysis to replicate the findings of Christensen and Eining (1991), Woolley and Eining (2006) also tested their theory of reasoned action model using structural equation modelling. Their findings confirmed the results of the multiple regression analyses and highlighted the dominance of attitudes ($B = 0.62$) in explaining piracy behaviour in relation to subjective norms of peers ($B = 0.18$). A relationship (correlational not causal) between attitudes and subjective norms of peers ($r = 0.34$) was also reported.

With the exception of the study by Woolley and Eining (2006), which attempted a longitudinal comparison of changes in software piracy behaviour and sensitivity among accounting students in 1991 and those in 2003, the other empirical research on software piracy using the theory of reasoned action used a cross-sectional research design. Thus, the use of intention as the dependent variable (Al-Jabri & Abdul-Gader, 1997) was logical since it was the only forward-looking construct a study using a cross-sectional design could hope to predict and explain. However, software piracy behaviour was also popularly selected as the dependent variable by Eining and Christensen (1991) and Christensen and Eining (1991). In these studies, the dependent variable was actually tapping into past behaviour and current attitudes and perceptions about social pressures were used to predict behaviours that had already occurred and which potentially had already exerted a causal influence on the current attitudes and perceptions in question, leading to an untenable circularity in the predictive equation. In the longitudinal comparison study by Woolley and Eining (2006), the longitudinal design was not leveraged to measure attitudes and perceptions at one point in time and actual software piracy behaviour at a second point in time to facilitate the prediction of behaviour from attitudes and social pressures. Instead, measures of attitudes, subjective norms and software piracy behaviour were collected simultaneously in 2003 and were compared to the set of similar data collected concurrently in 1991 by Christensen and

Eining. Thus, in effect this so-called longitudinal investigation compared two studies based on cross-sectional research designs separated by a twelve year time-lag. The use of past behaviour as a dependent variable posed the same conceptual problems in this context as it did in the context of the studies using cross-sectional research designs discussed above. Interestingly, when piracy behaviour was used as the dependent variable in studies (Eining & Christensen, 1991; Christensen & Eining, 1991) using cross-sectional research designs, the intention variable was entirely absent possibly due to the conceptual confusion positioning it as a prelude to past behaviour would have produced. Ideally, intention should have been used as the dependent variable in these studies and if behaviour was included as a variable, it ought to have been included in the form of past behaviour as a predictor of future intention.

The paucity of empirical software piracy research based on the theory of reasoned action using longitudinal research designs implied that it was not possible to comment on causal relationships between constructs (i.e. whether attitudes and subjective norms were causally related to intention and whether intention was causally related to behaviour) or the most optimal temporal sequencing of the constituent components of the model for maximum predictivity. In terms of the contextual factors catered for in the studies using the theory of reasoned action to explain software piracy, generally, the only external influence accommodated was in the form of significant others' perceptions and feelings about individuals' behavioural choices in the form of the social pressures variable. This constituted an interpersonal contextual factor. Traditionally, no objective situational or sociostructural contextual factors (as they were defined in social cognitive theory) were included as predictors of software piracy intention or behaviour in the theory of reasoned action because it was envisaged as a framework that only explained behaviours under complete volitional control and, consequently, did not require a construct that tapped into external systemic influences since this was not deemed relevant when behaviour was under complete control of the actor (Armitage & Conner, 2001). It is difficult to conceive of a situation in which behaviour is under complete volitional control and in which behaviour occurs in a vacuum without being influenced by systemic factors in the context in which it is being enacted. Nevertheless, this is the behaviour that the theory of reasoned action undertook to predict (Armitage & Conner, 2001). However, in the study by Eining and Christensen (1991) the material consequences and socio-legal constructs were added as predictors of piracy intention. Material consequences measured individuals' subjective perceptions of the monetary gains and losses they were likely to incur from pirating software and the probability that they would get caught if they enacted the behaviour while socio-legal attitudes dealt with perceptions about the software companies and

legal issues surrounding software piracy. These constructs introduced some subjective facilitators and impediments considerations in the form of economic and legal factors into the equation for predicting software piracy behaviour. These were notably different from the objective, external, contextual facilitators and impediments (situational and sociostructural) defined in social cognitive theory. Ultimately, the socio-legal attitudes variable was excluded because it was not supported as a factor in its own right in the factor analysis while the material consequences variable accounted for 19% ($p < 0.05$) of the variance in the dependent variable which, in comparison with the explanatory potential of the norms variable (encompassing both attitudes and subjective norms), was relatively low. Knowledge of copyright laws was also considered as a factor that impacted whether or not individuals engaged in software piracy by Christensen and Eining (1991) and Woolley and Eining (2006) but was never included as a predictor in the multiple regression or structural regression analyses. Knowledge of copyright laws constituted an example of an objective personal (as opposed to a situational or sociostructural) facilitator or impediment in social cognitive terms. Thus, the range of objective contextual variables included as actual predictors of piracy behaviour in research based on the theory of reasoned action appeared to be limited. Technically, the inclusion of systemic contextual factors in the prediction of behaviour using the theory of reasoned action deviated from the central assumptions of this theoretical framework (Armitage and Conner, 2001) but their inclusion in the empirical studies discussed may have gone some way towards overcoming a major shortcoming: the conceptualisation of behaviour as occurring in a vacuum without being impacted by external sociostructural influences when behaviour was deemed to be under the complete volitional control of the actor (Armitage & Conner, 2001). Relative to the constituent components of social cognitive theory outlined earlier, research based on the theory of reasoned action's theoretical framework did not include a construct or set of constructs that differentiated the theory when it was used to explain prosocial behaviour from when it was used to explain antisocial behaviour (such as moral disengagement) and it did not include a construct that was equivalent to self-efficacy.

3.3.2 Theory of planned behaviour in software piracy research

The theory of planned behaviour extended the coverage of the theory of reasoned action with the introduction of perceived behavioural control. While the theory of reasoned action was conceptualised as relevant only to explaining behaviour under the complete volitional control of the actor, perceived behavioural control in the theory of planned behaviour rendered it relevant

for predicting behaviour in which the actor perceived diminished levels of volitional control; implying that the presence or absence of external resources or opportunities were envisaged to play an influential role in determining whether or not behaviour was ultimately enacted (Armitage & Conner, 2001). Perceived behavioural control accounted for significant amounts of variance in intention (R^2 = 0.18 - adding 6% of unique variance to intention holding attitudes and subjective norms constant) and behaviour (R^2 = 0.13 - adding 2% of unique variance to behaviour holding intention constant) independent of the theory of reasoned action constructs rendering it a variable of considerable explanatory potential in the theory of planned behaviour (Armitage & Conner, 2001). Chang (1998) found that perceived behavioural control (β = 0.43; $p < 0.05$) was a better predictor of intention than attitudes (β = 0.34; $p < 0.05$) and subjective norms (β = 0.09*ns*) and concluded that, on the whole, the theory of planned behaviour was a better predictor of unethical behaviour (specifically of software piracy behaviour) than the theory of reasoned action. Cronan and Al-Rafee (2008) also found evidence for perceived behaviour control (β = 0.12; $p < 0.05$) as a stronger predictor of intention to pirate software than attitudes (β = 0.11; $p < 0.10$) and subjective norms (β = 0.07*ns*). These findings suggested that in relation to software piracy, perceived behavioural control was relatively more important for predicting intentions than attitudes and subjective norms. However, in other empirical research, attitudes (Peace et al., 2003 [β = 0.54; $p < 0.05$]; Kwong & Lee, 2002 [β = 0.25; $p < 0.01$]) emerged as the strongest predictor of behavioural intention when compared to other theory of planned behaviour constructs: subjective norms (Peace et al., 2003 [β = 0.28; $p < 0.05$]; Kwong & Lee, 2002 [β = 0.19; $p < 0.01$]) and perceived behavioural control (Peace et al., 2003 [β = 0.14; $p < 0.05$]; Kwong & Lee, 2002 [β = 0.19; $p < 0.01$]) in the context of software piracy. This seemed to be in line with the widely accepted notion that attitudes were generally the best predictor of intention in the theory of planned behaviour (Armitage & Conner, 2001). Thus, there was contention in the empirical software piracy research about whether perceived behavioural control or attitude was the stronger predictor of intention and behaviour. There was also mixed evidence for the role of subjective norms in the theory of planned behaviour with some studies reporting significant relationships between them and intention while others found non-significant relationships between these constructs. In the light of these inconsistencies, Armitage and Conner (2001) described the subjective norms construct as the weakest predictor of behavioural intention in the theory of planned behaviour. This led to subjective norms being excluded from empirical work on the theory of planned behaviour but Armitage and Conner (2001) argued that its poor predictive power was essentially a function of the manner in which it was measured rather than the explanatory potential of the construct itself. Ajzen (1991) argued that the relative importance of

attitudes, subjective norms and perceived behavioural control as predictors of intention was likely to vary across behaviours and situations. This review of empirical research on the theory of planned behaviour highlighted that the relative predictive potential of these constructs was also likely to vary in relation to the same behaviour across different research scenarios with attitudes and perceived behavioural control assuming either first or second place as predictors of intention and subjective norms consistently assuming third place.

The inclusion of perceived behavioural control in the theory of planned behaviour implied an explicit acknowledgement of the importance of external environmental influences for predicting behavioural intentions under conditions where individuals perceived they possessed diminished volitional control over their behaviour (Armitage & Conner, 2001). A deconstruction of the notion of perceived behavioural control yielded two distinct factors: self-efficacy and controllability. The self-efficacy factor was typically measured with items pertaining to the ease or difficulty of performing a behaviour or to confidence in one's ability to perform a behaviour while the controllability factor was measured by items that captured the extent to which the performance of behaviour was perceived to be within the control of the actor (Ajzen, 2002). Ajzen (2002) cautioned that controllability was not synonymous with locus of control and that self-efficacy beliefs did not exclusively reflect internal factors while controllability beliefs did not only encompass external factors. Further, Ajzen (2002) argued that the division of perceived behavioural control into two discrete elements did not negate the unitary nature of the construct and although empirical research had not demonstrated convergence between self-efficacy and controllability he proposed that these elements should nevertheless be theoretically related. Thus, the perceived behavioural control construct in the theory of planned behaviour appeared to be an amalgamation of the social cognitive constructs of proficiency-based self-efficacy and internal (personal) and external (situational and systemic) *subjective* facilitators and impediments. It is noteworthy that while the theory of planned behaviour merged self-efficacy and facilitators and impediments, social cognitive theory treated them as discrete predictors of human behaviour. The empirical research reviewed in this section revealed that when the theory of planned behaviour was used to predict software piracy, perceived behavioural control was defined in terms of both self-efficacy and controllability in most cases (Chang, 1998; Kwong & Lee, 2002; Cronan & Al-Rafee, 2008). In the study by Peace et al. (2003), however, this construct was defined only in terms of self-efficacy which implied that the controllability (internal and external subjective facilitators and impediments) element was eliminated. This omission could be significant in explaining why perceived behavioural control did not emerge as a stronger predictor of intention

to pirate software in that study. The augmentation of the theory of reasoned action with the perceived behavioural control construct to yield a new theoretical framework for explaining human behaviour in the form of the theory of planned behaviour saw the introduction of a new self-efficacy element and the expansion of the range of external environmental influences into the equation for predicting human behaviour.

In addition to the theory of planned behaviour's base constructs (viz. attitudes, subjective norms and perceived behavioural control), other constructs were conceptualised and modelled as direct and indirect predictors of intention to pirate software in the empirical analyses reviewed in this section. External sanction, derived from deterrence theory, repeatedly featured as a factor influencing behavioural intention in the software piracy domain. Typically, external sanction assumed the form of anticipated punishment. Peace et al. (2003) conceptualised the punishment probability factor and the punishment level factor described in deterrence theory as punishment severity and punishment certainty and pitched them as indirect predictors of intention through the attitude (punishment severity and punishment certainty) and perceived behavioural control (punishment certainty) constructs. Kwong and Lee (2002) envisaged the deterrence effect of legislation as directly impacting attitudes and having both direct and indirect effects on behavioural intention. The empirical findings revealed that punishment severity (β = -0.26; p < 0.05), punishment certainty (β = -0.68; p < 0.05) (Peace et al., 2003) and the deterrence effect of legislation (β = -0.21; p < 0.01) (Kwong & Lee, 2002) had an inverse relationship with attitudes implying that when individuals anticipated punishment for their actions, their attitudes towards those actions were negative. Further, the direct relationship between the deterrence effect of legislation on behavioural intention (β = -0.30; p < 0.01) was also negative suggesting that when individuals perceived legislation as an obstacle to engaging in antisocial behaviour (software piracy in this instance) they were less likely to form intentions to enact the behaviour (Kwong & Lee, 2002). These findings suggested that the anticipation of external sanctions were likely to thwart positive attitudes towards antisocial behaviour and to curb the formation of intentions to engage in antisocial behaviour. Bandura (1986) recognised that antisocial behaviour was likely to be more strongly influenced by internal sanctions rather than external ones and it was this idea that gave context to the concept of moral disengagement in social cognitive theory. While the theory of planned behaviour was not originally conceptualised to include a construct similar to moral disengagement, similar concepts have been appended to it to predict intention to pirate software. Cronan and Al-Rafee (2008) included moral obligation, which they defined as a feeling of guilt or a sense of personal obligation to perform or not to perform the act of pirating software,

to the predictive equation as a precedent to behavioural intention. They hypothesised that individuals with high moral obligation would have lower intention to engage in the piracy of digital material and their findings (β = -0.29; $p < 0.01$) were consistent with this hypothesis. Like moral disengagement, moral obligation introduced a consideration of morality in relation to unethical or antisocial behavioural options but unlike moral disengagement, moral obligation's focus ended at the point of considering whether or not a behaviour conflicted with one's internal moral standards, while moral disengagement went one step further to override these internal standards in the event of a conflict to render the behaviour personally acceptable to the individual. Bandura (1986) drew a distinction between the disengagement of internal control (moral disengagement) in social cognitive theory and the concept of deindividuation, and argued that while they shared common determinants and had processes of self-disinhibition that overlapped, they were fundamentally different. While deindividuation attributed the enactment of detrimental behaviour to a lapse in cognitive self-control, Bandura's (1986) notion of moral disengagement in social cognitive theory was built on the premise that individuals were in complete control and harnessed their cognitive skills and percepts of self-control to activate moral justification and self-vindicating devices to absolve themselves of culpability by re-framing detrimental behaviour as benign. Kwong and Lee (2002) introduced the notion of computer deindividuation into their theory of planned behaviour model as a moderator of the influence of subjective norms on behavioural intention. They argued that the anonymity associated with computer use induced a sense of deindividuation which diminished individuals' abilities to identify with others and led to an estrangement from those who were likely to be impacted by their actions, resulting in them being more likely to engage in antisocial or ethically questionable behaviour. The findings suggested that when individuals experienced computer deindividuation due to the anonymity it offered when pirating software, their intentions to pirate software was less likely to be inhibited by social pressures (Kwong & Lee, 2002). Thus, although computer deindividuation and moral disengagement are theoretically distinct constructs, they are both likely to bear strong positive correlations with intentions to engage in antisocial behaviour and with the enactment of antisocial behaviour.

Equity theory contributed the notion of a perceived equitable relationship (Kwong & Lee, 2002) and expected utility theory introduced the construct of software cost (Peace et al., 2003) (as opposed to software benefit) to predict intention to pirate software alongside the base constructs in the theory of planned behaviour. Both these constructs were conceptualised as having a direct relationship with attitudes (Kwong & Lee, 2002; Peace et al., 2003) and a perceived equitable

relationship, in addition, had a direct relationship with behavioural intention (Peace et al., 2003). Equity theory was designed to explain individuals' perceptions of fairness or equity in the context of social exchanges. Individuals evaluated their inputs and rewards in relation to the inputs and rewards of those with whom they were entwined in the social exchange. If they perceived that they were contributing more inputs to the relationship but others were reaping bigger rewards, they were likely to act in a manner that introduced balance to the interaction. This implied that they were likely to form positive attitudes towards behaviours and to form intentions to behave in ways that could re-introduce this balance (Kwong & Lee, 2002). In the study by Kwong and Lee (2002), the results supported the notion that a lack of perceived equitable relationship between individuals and the owners of music copyright positively affected individuals attitudes towards music piracy ($\beta = 0.76$; $p < 0.01$) while the notion that a lack of perceived equitable relationship between individuals and the owners of music copyright positively affected individuals behavioural intentions to engage in music piracy was not supported. Expected utility theory posited that rational, self-interested individuals would opt for courses of action that maximised expected utility and minimised expected risk when confronted with various alternatives. The aim was for individuals to evaluate their options in terms of the expected costs versus anticipated benefits and to choose the alternative that translated into the highest gain (Peace et al., 2003). In the study by Peace et al. (2003), it was hypothesised that if individuals perceived the cost of software to be high, they were likely to form positive attitudes towards software piracy. By obtaining software through illicit means without having to pay exorbitant prices, they were likely to minimise their costs and maximise their benefits. The findings supported this hypothesis with a positive relationship between software cost and attitudes ($\beta = 0.22$; $p < 0.05$) (Peace et al., 2003). The tacking on of constructs such as punishment severity, punishment certainty, moral obligation, computer deindividuation, software cost and perceived equitable relationship to attitudes, social pressures and perceived behavioural control suggested that, on its own, the theory of planned behaviour was not always adequate to explain intention to pirate software and therefore, relied on the addition of other constructs to enhance its predictiveness.

All the studies leveraging the theory of planned behaviour to explain software piracy in this review used behavioural intention as the dependent variable. In the context of their cross-sectional research designs this was entirely appropriate since intention constituted the only forward-looking construct that could meaningfully be predicted. Taking this argument to its logical conclusion, software piracy behaviour could only meaningfully be predicted in the context of a longitudinal research design where data on actual piracy behaviour was collected at some

point in the future to be used as the dependent variable in relation to data about predictor variables collected at some point in the past. It has been argued that when data about behaviour is collected in the context of a cross-sectional study, this represents past behaviour. It has also been argued that while it was problematic to regard past behaviour as the dependent variable as was the case in some empirical software piracy research using the theory of reasoned action, it is more appropriate to treat this data as indicative of past behaviour and to use it to predict future intention and future behaviour. Cronan and Al-Rafee (2008) used the behaviour construct in this way and proposed that past piracy behaviour influenced future intention to pirate digital material. Their findings revealed that past behaviour was a significant predictor of intention ($\beta = 0.46$; $p < 0.01$). While the use of cross-sectional research designs implied that it was not theoretically possible to comment on causality in the theory of planned behaviour studies reviewed in this section, Chang (1998) noted the presence of a significant causal path from subjective norms to attitudes ($\beta = 0.49$; $p < 0.05$). This causal path could only realistically be corroborated in the context of longitudinal research but Chang (1998) did not caution against the limitation that causality could not technically be commented on in the context of his cross-sectional study. A further comment on the methodology used to conduct the empirical research on software piracy based on the theory of planned behaviour paradigm was that researchers did not consistently ensure that measures devised for collecting data about the predictor and criterion constructs in the studies in question were adequately trialled to confirm their reliability and validity before using them as the basis for drawing conclusions about software piracy intention. Kwong and Lee (2002) were the only researchers who reported engaging in a pilot test of their measures before proceeding to the full-scale study. The empirical studies reviewed in this section all leveraged student samples. However, Peace et al. (2003) appeared to mitigate the shortcoming of the lack of generalisability of their student sample by using a group of part-time students who were all also employed at the time they participated in the study. The use of student samples has been criticised for being over-utilised due to their accessibility as a willing group of participants in the arena of software piracy research and for not being representative of the wider population. This phenomenon was not confined to empirical research using the theory of planned behaviour but was also noted in the empirical studies based on the theory of reasoned action (Eining & Christensen, 1991; Christensen & Eining, 1991; Al-Jabri & Abdul-Gader, 1997; Woolley & Eining, 2006) reviewed earlier and the theory of interpersonal behaviour (Limayem et al., 2004) and social cognitive theory (Kuo & Hsu, 2001; LaRose & Kim, 2007) which will be discussed next.

3.3.3 Theory of interpersonal behaviour in software piracy research

In the first phase of a longitudinal study of the factors motivating software piracy using Triandis' model of interpersonal behaviour, social factors, perceived consequences and affect were postulated to predict software piracy *intentions* (Limayem et al., 2004). Social factors were defined as individuals' perceptions of whether or not the people who were important to them believed they should perform a specific behaviour and appeared to correspond with the social pressures or subjective norms construct in the theories of reasoned action and planned behaviour. Perceived consequences referred to the outcomes individuals' perceived their actions would produce while affect was defined as positive or negative feelings associated with the behaviour in question. Jointly, perceived consequences and affect seemed to correspond with the attitude construct in the theories of reasoned action and planned behaviour. This was congruent with Triandis' (1977) conceptualisation of Fishbein and Ajzen's (1975) definition of attitudes which he believed subsumed the affective and cognitive (perceived consequences) components in his model of interpersonal behaviour. With regard to social cognitive theory, social factors, perceived consequences and affect cumulatively seemed to correspond with the outcome expectations construct. In the second phase of the longitudinal study, Limayem et al. (2004) proposed that habits, facilitating conditions and intentions were antecedents to software piracy *behaviour*. Habits were recognised as automated, situationally-dependent behavioural sequences which occurred without individual self-instruction. They were conceptualised as affecting both behaviour and attitudes and were understood to be a function of past experience and specific abilities to accomplish tasks related to the behaviour in question. Due to the premise that behaviour in the theory of reasoned action was completely under the volitional control of the actor, there was no room for the concept of habit in this context. However, in the theory of planned behaviour and in social cognitive theory, the propensity for automated response sequences to influence intentions and behaviour was not regarded as an impossibility even though there were no specific constructs that catered for the inclusion of habits in these theoretical paradigms. Facilitating conditions were defined as objective factors in the environment that facilitated the enactment of specific behaviour. This construal of facilitating conditions set it apart from the notion of perceived behavioural control which tapped into individuals' *subjective* perceptions of the impact of external influences and self-efficacy on their intentions and behaviour. It appeared to be more aligned with contextual facilitators and impediments (as opposed to personal facilitators and impediments) in social cognitive theory which was defined as a measure of the *objective* personal, situational and sociostructural factors that impacted on

behaviour. Intentions referred to the extent to which individuals were willing to try and how much effort they were prepared to expend to engage in specific behaviours (Limayem et al., 2004). The hypothesised relationships, which were all positive, and the findings from this study are presented in Table 3.1.

Table 3.1: Hypotheses and results for software piracy study using Triandis' theory of interpersonal behaviour

Hypothesised relationships	Factor loading (β)	Significance
Social factors ⇨ Intention	0.31	$p < 0.01$
Perceived consequences ⇨ Intention	0.55	$p < 0.01$
Habit ⇨ Behaviour	0.32	$p < 0.05$
Habit ⇨ Affect	0.59	$p < 0.01$
Affect ⇨ Intention	0.09	*ns*
Facilitating conditions ⇨ Behaviour	0.35	$p < 0.01$
Intention ⇨ Behaviour	0.18	*ns*

With the exception of the paths between affect and intention and interestingly, between intention and behaviour, all the hypotheses proposed by Limayem et al. (2004) were supported. It was suggested earlier that perceived consequences and affect jointly appeared to comprise the attitude construct. The findings suggested that the perceived consequences component of attitudes accounted for a larger proportion of the variance in the intention variable while the affect portion of the attitudes variable appeared to be less important in terms of magnitude and significance for predicting intention to pirate software. Limayem et al. (2004) acknowledged an attitude variable at one point in their study and reported correlations between attitude, intention, habit and piracy behaviour. However, it was not clear which constructs constituted the attitude variable in this study as the researchers had not made this explicit prior to the correlation analysis. In addition, it was not clear why facilitating conditions, social factors and perceived consequences were not included in the correlation analysis. Perhaps, the attitude variable was constituted of an amalgamation of the social factors and perceived consequences constructs which would have seemed reasonable and would have corresponded to the outcome expectations construct in social cognitive theory. However, there was no clarity about how the attitude variable was constituted in the study by Limayem et al. (2004) and if it was, in fact, an amalgamation of social factors and perceived consequences, it was still not clear why the facilitating conditions variable fell away in the correlation analysis. Intention did not emerge as a strong or significant predictor of software piracy behaviour as expected. Limayem et al. (2004) argued that a possible explanation for this was that the strong impact of habit and facilitating conditions on behaviour overrode the impact of intention on behaviour but suggested that further research was necessary to explore this unusual finding. Effectively, they argued that strong habitual tendencies to pirate software and the

absence of objective facilitating conditions resulted in intention to pirate software not being significantly associated with software piracy behaviour.

A more recent cross-sectional, unpublished study tested the relevance of Triandis' (1977) theory of interpersonal behaviour for understanding software piracy in a South African context (Robinson, 2010). Social factors, affect, perceived consequences, habit and facilitating conditions were envisaged as predictors of software piracy intentions and behaviour in the multiple regression analysis used to test a set of models. Unfortunately, despite being cross-sectional in nature, behaviour was sometimes used as the dependent variable. This implied that these models were used to predict a measure of past behaviour which confounded the temporal sequence of events by using constructs measured in the present to predict a construct that had already occurred in the past instead of following the logical temporal sequence in which constructs measured in the present are used to predict a variable that will be measured at some point in the future. To confound the analysis further, two measures of past behaviour were included in the model. The first was the dependent variable and the second was the habit construct. Essentially, habit (defined as the frequency with which individuals engaged in software piracy in the past) was conceptualised as a predictor of past behaviour. In the author's opinion, using past behaviour (habit) as a predictor of itself (software piracy behaviour) was untenable and although Robinson (2010) endeavoured to differentiate habit from past behaviour, they were essentially tapping into two aspects of the same construct (behaviour = whether or not an individual had engaged in software piracy in the last three months; habit = the frequency with which individuals had engaged in software piracy in the past). This created a conceptually difficult context for interpreting the results obtained by Robinson (2010). Limayem et al.'s (2004) study, on the other hand, was longitudinal in nature which implied that the use of intention as the dependent variable in the first assessment wave and behaviour in the second was reasonable. However, the second wave consisted only of two questions pertaining to behaviour which did not allow for the temporal sequences between the constructs which had been measured concurrently in the first phase to be investigated; especially the proposed causal relationship between habit and affect. The structural model was constructed in a way that implied a causal relationship between habit and affect but all the researchers were able to comment on was a correlational relationship between them. If they did envisage this relationship to be causal, then in order to more accurately test it, they would have had to collect data pertaining to habit during the first assessment wave and data about affect at the second data collection point to create temporal distance between these constructs in order to more realistically comment on causality. The use of a student sample by

Limayem et al. (2004) suggested that the generalisability of their findings may have been limited while the use of a sample comprised of individuals from a range of industry sectors in the study by Robinson (2010) held the promise of a potentially more generalisable set of results. However, this advantage appeared inconsequential due to the conceptual complexities (the use of behaviour as the dependent variable in the context of a cross-sectional research design and the use of past behaviour as a predictor of itself) inherent in Robinson's (2010) study which rendered the findings difficult to accurately interpret.

It is noteworthy that neither of the studies using the theory of interpersonal behaviour to explain software piracy (Limayem et al., 2004; Robinson, 2010) included constructs that corresponded with social cognitive theory's self-efficacy and moral disengagement. While Triandis' (1977) theory of interpersonal behaviour catered for a self-concept construct (which Bandura (1986) clearly distinguished from self-efficacy) there was no explicit reference to the notion of self-efficacy as it had been defined as part of the perceived behavioural control (Ajzen, 2002) construct in the theory of planned behaviour and in social cognitive theory (Bandura, 1986). However, Triandis (1977) did not offer his model of interpersonal behaviour as a complete and unchangeable framework and conceived of it instead as flexible enough to include other pertinent components that he may not have considered. The self-efficacy construct has been empirically shown to be predictive of intention and behaviour in the context of the theory of planned behaviour (discussed above) and social cognitive theory (which will be discussed next). Thus, if its predictive utility was to be leveraged in the theory of interpersonal behaviour, it would probably be most appropriately defined as a social factor that predicted behavioural intention together with the notions of norms, roles, contractual arrangements, self-regulation and self-concept (Triandis, 1977). Neither of these studies (Limayem et al., 2004; Robinson, 2010) recognised the absence of self-efficacy in the theory of interpersonal behaviour or made an effort to include it in the light of Triandis' (1977) acknowledgement that the constructs he proposed in his model of interpersonal behaviour were not exhaustive. This was unfortunate especially since the study by Robinson (2010) claimed to test a revised model of interpersonal behaviour as opposed to the classical one proposed by Triandis (1977) which Limayem et al. (2004) appeared to adopt. This implied that along with other adaptations, Robinson (2010) could have added self-efficacy to the social factors component to enhance the model's overall predictiveness. In the theoretical review of social cognitive theory, moral disengagement was central to the self-regulation mechanism and was recognised as a key determinant of human behaviour (Bandura, 1986). Triandis (1977) also recognised self-monitoring or self-regulation as an aspect of the

social factors determinant and as a predictor of behavioural intention but did not formulate a construct that corresponded directly with moral disengagement. However, neither of the studies reviewed in this section translated Triandis' (1977) conceptualisation of self-regulation into a construct that took cognisance of the morality of individuals' behavioural choices. While Triandis (1977) did not offer explicit guidance about how self-regulation could be operationalised in his model of interpersonal behaviour, apart from including an item that tapped into moral obligation as part of the self-concept component of the social factors construct in an example questionnaire, he did recognise the importance of evaluating individuals' moral reactions and responses to behaviours and situations that were antisocial in nature which deviated from internal moral codes and standards. In the empirical research of software piracy using the theory of interpersonal behaviour (Limayem et al., 2004; Robinson, 2010), in which software piracy represented an instance of antisocial behaviour, it is surprising that no moral construct was included to predict software piracy intention (in line with the classic interpretation of the theory). Thus, while Triandis' (1977) notion of self-regulation and its translation into a moral construct in the theory of interpersonal behaviour rendered it uniquely suitable for predicting antisocial behaviours, this nuance of the theory was not leveraged by Limayem et al. (2004) or Robinson (2010). The exclusion of self-regulation (which could have been operationalised as a moral construct) could have diminished the overall predictiveness of the theory of interpersonal behaviour models used to predict antisocial software piracy behaviour. Thus, Limayem et al. (2004) and Robinson (2010) adopted a narrow definition of the social factors construct which excluded components such as self-efficacy, moral disengagement and moral obligation even though these variables had been successfully used in empirical software piracy research based on the theory of planned behaviour and social cognitive theory. The narrowly defined social factors variable in these studies was also evident in relation to Triandis' (1977) conceptualisation of the construct which was not limited to subjective norms, as was the case in the studies reviewed in this section, but which included other components such as roles, contractual arrangements, self-monitoring and self-concept.

The facilitating conditions construct in the studies by Limayem et al. (2004) and Robinson (2010) was defined as objective factors in the environment that supported or impeded the performance of behaviour. Facilitating conditions introduced objective contextual factors as determinants of behaviour in the theory of interpersonal behaviour. However, in both studies, the variable was measured in the context of self-report surveys which captured individuals' perceptions of the factors in the environment that supported or hindered their ability to perform specific behaviours (in this case, software piracy behaviour). Thus, facilitating conditions was actually

operationalised as a subjective measure. Triandis' (1977) definition of facilitating conditions clearly emphasised the objective aspect of the construct and although the studies by Limayem et al. (2004) and Robinson (2010) leveraged Triandis' (1977) definition, they both operationalised it as a subjective measure. A useful conceptualisation in the study by Robinson (2010) was of facilitating conditions as a moderator of the relationships between intention and behaviour and habit and behaviour. Limayem et al. (2004) opted to test facilitating conditions as an immediate precursor to actual piracy behaviour and in their study facilitating conditions had no relationship with intention or habit. However, according to Triandis' (1977) interpretation, the probability of an act was a function of the relationships between intention and facilitating conditions and habit and facilitating conditions. This suggested that Robinson's (2010) handling of the facilitating conditions construct was more in line with the classical interpretation of the theory of interpersonal behaviour (Triandis, 1977). However, Robinson's (2010) conceptualisation became confusing when she treated habit both as a direct predictor of behaviour and as a moderator of the relationship between intention and behaviour without offering a clear rationale for why these divergent construals of habit were necessary. At the end of the analysis, unfortunately, it was not clear which of these conceptualisations was more useful. This detracted from a unified understanding of how the model of interpersonal behaviour was intended to cohere as a framework for predicting interpersonal behaviour.

3.3.4 Summary of empirical software piracy research using the theories of reasoned action, planned behaviour and interpersonal behaviour

The preceding discussion reviewed empirical research that leveraged three popular theories of human behaviour (viz. the theories of reasoned action, planned behaviour and interpersonal behaviour) to explain software piracy. The author noted in the previous chapter that there were many similarities between these three theoretical frameworks and social cognitive theory in terms of the predictors they used to explain human behaviour. In Table 3.2 a mapping of the predictors used in the theories of reasoned action, planned behaviour and interpersonal behaviour against the generic building blocks of social cognitive theory for explaining antisocial behaviour is presented to illustrate the range of predictors used to explain software piracy in the empirical research. The attitudes and subjective norms constructs appeared consistently in the empirical software piracy research that leveraged the theories of reasoned action, planned behaviour and interpersonal behaviour and also combined to form the outcome expectations construct in social cognitive theory. While attitudes constituted a cognitive predictor of human behaviour subjective norms

were essentially a social predictor because they tapped into individuals' subjective perceptions of how significant others in their social circles judged their behavioural choices and how these judgements ultimately influenced and shaped their behaviour. Thus, while the theories of reasoned action, planned behaviour and interpersonal behaviour treated these cognitive and social determinants of behaviour as discrete variables, Bandura (2004a) proposed that they combined to form the outcomes expectations construct in social cognitive theory. Self-efficacy, on the other hand, did not feature consistently across these theoretical frameworks. It was incorporated into the perceived behavioural control construct (alongside controllability) in the theory of planned behaviour and existed as a key individual determinant of human behaviour in social cognitive theory. However, it did not feature at all in the theories of reasoned action and interpersonal behaviour. Even though the theory of interpersonal behaviour was conceptualised as a framework that was flexible enough to accommodate variables that may have been omitted, self-efficacy was not included in the empirical software piracy research that leveraged the theory of interpersonal behaviour. As suggested earlier, if self-efficacy had been added to the models of interpersonal behaviour tested in the empirical studies, it would probably have fit best, from a theoretical point of view, into the social factors component.

Social cognitive theory posited that personal factors, environmental influences and behaviour interacted with each other in a pattern of triadic reciprocal causation to influence human motivation, thought and action (Bandura, 1986) and explicitly acknowledged the environment as a contextual determinant of human behaviour. Facilitators and impediments (personal, situational and sociostructural) were conceptualised as equivalent to the objective facilitating conditions construct proposed by Triandis (1977) in the theory of interpersonal behaviour and were interpreted by the author as distinctly different from the contextual factors of perceived behavioural control (the controllability component) and social pressures incorporated in the theories of planned behaviour and reasoned action which pertained to subjective perceptions of internal and external (including interpersonal) influences. The earlier theoretical review of social cognitive theory revealed that the social norms or social pressures component of the outcome expectations construct and the situational and systemic elements of the facilitators and impediments construct introduced the "social" aspect into the theory. In each case, these "social" elements co-existed with cognitive elements in the outcome expectations (attitudes) construct and with intra-individual elements in the facilitators and impediments (personal factors) construct.

Table 3.2: Comparison of constructs and methodological considerations in empirical software piracy research leveraging the theories of reasoned action, planned behaviour and interpersonal behaviour

COMPARISON OF CONSTRUCTS IN THE THEORIES OF REASONED ACTION, PLANNED BEHAVIOUR, INTERPERSONAL BEHAVIOUR AND SOCIAL COGNITIVE THEORY									METHODOLOGICAL CONSIDERATIONS			
Theoretical framework	**Study**	**Moral disengagement**	**Self-efficacy**	**Outcome expectations**	**Facilitators & impediments**	**Intention**	**Behaviour**		**Research design**		**Pilot study**	**Student sample**
							Past	**Future**	**Cross-sectional**	**Longitudinal**		
Theory of reasoned action	Al-Jabri & Abdul-Gader (1997)			ATT, SN		INT (DV)			✓		×	✓
	Eining & Christensen (1991)			ATT, SN	Material consequences (subjective perceptions of F&I)		PB (DV)		✓		×	✓
	Christensen & Eining (1991)			ATT, SN			PB (DV)		✓		✓	✓
	Woolley & Eining (2006)			ATT, SN			PB (DV)		✓		✓	✓
Theory of planned behaviour	Chang (1998)		PBC (SE)	ATT, SN	PBC (Controllability) (subjective perceptions of F&I)	INT (DV)			✓		×	✓
	Kwong & Lee (2002)		PBC (SE)	ATT, SN	PBC (Controllability) (subjective perceptions of F&I)	INT (DV)			✓		×	✓
	Cronan & Al-Rafee (2008)	Moral obligation	PBC (SE)	ATT, SN	PBC (Controllability) (subjective perceptions of F&I)	INT (DV)	PB		✓		×	✓
	Peace, Galletta & Thong (2003)		PBC (SE)	ATT, SN		INT (DV)			✓		✓	✓
Theory of interpersonal behaviour	Limayem, Khalifa & Chin (2004)			Social factors (SN) Perceived consequences (ATT) Affect (ATT)	Facilitating conditions (subjective perceptions of F&I)	INT	Habit (PB)	BEH @ Time2 (DV)		✓	✓	✓
	Robinson (2010)			Social factors (SN) Perceived consequences (ATT) Affect (ATT)	Facilitating conditions (subjective perceptions of F&I)	INT	PB (DV) Habit (PB)		✓		✓	×

PBC: Perceived behavioural control SE: Self-efficacy ATT: Attitude SN: Subjective norms F&I: Facilitators and impediments INT: Intention PB: Past behaviour BEH: Future behaviour
DV: Dependent variable

Importantly, the social element of outcome expectations pertained to the *subjective* interpretation of pressures placed on individuals by significant others while the social or contextual component of facilitators and impediments, as the construct has been defined in this study, referred to the *objective* environmental factors that existed outside the individual in the situations and the macro-contexts in which they operated which impacted their behavioural choices. Thus, while social cognitive theory and the theory of interpersonal behaviour also catered for subjective perceptions of external influences in the form of the social norms component of outcome expectations and the social factors component respectively, they ventured beyond the bounds of the theories of reasoned action and planned behaviour by introducing the environment into the predictive equation as an objective determinant of human behaviour in addition to individuals' subjective perceptions of the impact of environmental forces on their behavioural choices. The handling of environmental influences as objective factors as opposed to subjective interpretations implied that the actual context and not personal perceptions and attitudes about the impact of the context served as determinants of behaviour in social cognitive theory and the theory of interpersonal behaviour.

In the empirical software piracy research, the facilitators and impediments construct was incorporated into the controllability component of the perceived behavioural control variable in the theory of planned behaviour in which it was defined and operationalised as subjective perceptions of environmental and contextual factors as predictors of human behaviour in keeping with the theoretical presentation. However, even though facilitators and impediments were defined as objective factors in the environment that facilitated or impeded the enactment of behaviour in the theory of interpersonal behaviour (Limayem et al., 2004; Robinson, 2010) they were operationalised as subjective perceptions of contextual enablers or inhibitors of behaviour in the empirical studies. Thus, the objective aspect of this definition was not capitalised on at all in the empirical software piracy studies leveraging the theory of interpersonal behaviour. Interestingly, even though the theory of reasoned action was premised on the prediction of behaviour that was under complete volitional control (which implied that it should theoretically have excluded external environmental influences captured in the facilitators and impediments construct), a study by Eining and Christensen (1991) included material consequences into the predictive equation as a subjective perception of the enabling or detracting impact of economic factors (which were not under the complete volitional control of individuals) on software piracy. Thus, the software piracy studies based on the theories of reasoned action, planned behaviour and interpersonal behaviour all operationalised facilitators and impediments as subjective perceptions

of external environmental influences even though the theory of interpersonal behaviour recognised the importance of objective facilitating conditions on behaviour. Social cognitive theory also recognised the predictive utility of objective contextual influences on behaviour. In the next section, the extent to which facilitators and impediments were operationalised as objective factors in the empirical software piracy research will be reviewed.

When intention was included in the structural models for predicting software piracy in studies that leveraged the theories of reasoned action, planned behaviour and interpersonal behaviour, it tended to be appropriately treated as the ultimate dependent variable when cross-sectional research designs were employed (Al-Jabri & Abdul-Gader, 1997; Chang, 1998; Kwong & Lee, 2002; Cronan & Al-Rafee, 2008; Peace et al., 2003) or as an immediate precursor to behaviour at Time 2 in longitudinal studies (Limayem et al., 2004). In one unusual study, however, intention was positioned as an immediate precursor to past behaviour which was conceptualised as the ultimate dependent variable (Robinson, 2010). This created conceptual confusion because it proposed that intention as a forward-looking variable measured in the present was temporally precedent to behaviour that had already taken place at some point in the past. Studies that used past behaviour as the ultimate dependent variable tended to omit the intention construct as an immediate precursor to the dependent variable and rightly so because it avoided this conceptual confusion. However, Cronan and Al-Rafee (2008) effectively demonstrated how past behaviour and intention could meaningfully co-exist in a structural model when they proposed that past behaviour preceded future intention to pirate software. The conceptualisation of behaviour as one of the major classes of determinants of human behaviour in social cognitive theory (together with personal factors and environmental influences) coupled with the theoretical principle of reciprocal determinism (which accommodated the structural properties of reciprocality and temporality) catered for the influence of both past behaviour and future behaviour as predictors in structural models of social cognitive theory. Bandura (1986) also recognised the importance of intention as a precursor to behaviour. Thus, in its theoretical presentation, social cognitive theory meaningfully accommodated past behaviour, intention and future behaviour in the predictive equation. The next section will review the empirical research that used social cognitive theory to explain software piracy to comment on whether researchers managed to meaningfully position these constructs in structural models they tested in the same way that Cronan and Al-Rafee (2008) did, or to establish whether these empirical studies suffered from the same conceptual lack of clarity as studies that used past behaviour as the ultimate dependent variable in the context of cross-sectional research designs.

Social cognitive theory technically had a broader coverage of constructs for explaining software piracy when compared with the theories of reasoned action, planned behaviour and interpersonal behaviour. Specifically, social cognitive theory was unique insofar as it was the only theoretical framework of the four that catered explicitly for the explanation of antisocial behaviour through its distinctive moral disengagement construct. In their theoretical presentations, the theories of reasoned action (Fishbein & Ajzen, 1975) and planned behaviour (Ajzen, 1991) did not propose a construct equivalent to moral disengagement with the result that these frameworks essentially proposed that the same set of constructs for predicting prosocial behaviour were also relevant for predicting antisocial behaviour. This conceptualisation overlooked a fundamental process that individuals potentially had to activate in order to engage in antisocial behaviour (i.e. disengaging from their internal standards so as to render the antisocial behaviour benign and palatable to their own sensibilities). To compensate for the absence of a construct with a moral component in the theoretical presentation of the theory of planned behaviour, Cronan and Al-Rafee (2008) tacked moral obligation onto it as a predictor of software piracy. The results of their study offered support for the predictive utility of a construct with a moral element for predicting software piracy as an instance of antisocial behaviour. It was noted in the previous chapter that social cognitive theory recognised moral disengagement as unique to explaining antisocial behaviour and as such, even though this was not overtly acknowledged by Bandura (1986), essentially proposed two compositionally distinct sets of constructs for predicting prosocial and antisocial behaviour with moral disengagement, which was recognised as unique for predicting antisocial behaviour, constituting the main differentiator between these two sets of variables. In social cognitive theory, therefore, moral disengagement was woven into the fabric of the theory while moral obligation had to be crudely tacked onto the base theory of planned behaviour constructs to predict software piracy because it was not catered for in Ajzen's (1991) theoretical presentation. Like social cognitive theory, the theory of interpersonal behaviour (Triandis, 1977) acknowledged the notion of self-regulation in its theoretical presentation. But unlike social cognitive theory, there was no explicit, well-defined construct like moral disengagement which explained the cognitive mechanisms individuals employed to justify antisocial behavioural choices to themselves in the theory of interpersonal behaviour, apart from a brief reference to moral obligation in a solitary item in an example questionnaire proposed by Triandis (1977). However, despite the theoretical acknowledgement of the notion of self-regulation in the theory of interpersonal behaviour, it was not catered for or operationalised as a predictor of software piracy in the empirical research that leveraged this theoretical framework. Thus, the empirical research based on the theories of reasoned action and interpersonal behaviour did not cater for an

equivalent moral disengagement construct to predict software piracy as an instance of antisocial behaviour while empirical research using the theory of planned behaviour to explain software piracy revealed an isolated attempt at catering for a construct with a moral component in the form of moral obligation. Therefore, in order to understand moral disengagement's properties and role in software piracy, the author turned to empirical software piracy studies that leveraged social cognitive theory. The gaps and questions that arose from this exploration in conjunction with the theoretical gaps and questions raised in the previous chapter about social cognitive theory informed the research questions that were ultimately formulated in this study. It is, thus, to a discussion of the empirical software piracy research that leveraged social cognitive theory that this discussion will now turn.

3.4 Social cognitive theory in software piracy research

In the previous chapter, social cognitive theory's empirical testability was called into question for two reasons. The first was because Bandura (1986) did not propose a clear set of building blocks to consistently serve as the predictors of human behaviour. The second was because he did not envisage a consistent pattern of interactions between a standard set of building blocks that operated cohesively as a uniform structural model of social cognitive theory that could be universally applied to the prediction of human behaviour. When a review of Bandura's (1986) primary theoretical presentation did not yield comprehensive insights into what the building blocks of social cognitive theory were and how they interacted with each other as a cohesive theory of human behaviour, the author turned to Bandura's empirical research for answers. This review yielded two lists of standard social cognitive building blocks; one for predicting prosocial behaviour and the other for explaining antisocial conduct. Moral disengagement featured as a unique predictor in the standard list for explaining antisocial behaviour and was the key differentiator between the two standard lists. Further, moral disengagement was unique to social cognitive theory when compared to other social psychological theories of human behaviour. Thus, since moral disengagement earned itself the position as the focal variable of interest in this study, researching it was contingent on constructing a social cognitive model in which it featured which necessitated investigating an instance of antisocial behaviour. It was noted earlier that moral disengagement was selectively activated in the context of contemplating antisocial behavioural choices. Software piracy was selected as the context in which moral disengagement was researched in this study. This study's central research aims were to explore moral disengagement's dimensionality or factor structure and its interactions with the other social

cognitive constructs to understand its position in structural models of social cognitive theory for explaining antisocial behaviour. It was essential, therefore, to investigate how moral disengagement was operationalised (in terms of its dimensionality) and how it interacted with other social cognitive variables in previous research conducted in the software piracy domain using social cognitive theory as the theoretical framework. It is to a review of these previous empirical studies that the author will now turn to understand what was done before and what conclusions were yielded and to understand what is still unknown or unclear about moral disengagement's dimensionality and interactions with other social cognitive constructs in the context of software piracy research so that this study could attempt to address some of these gaps.

3.4.1 A study-by-study review of empirical research that leveraged social cognitive theory to explain software piracy

In this section the author will review the empirical studies on software piracy that used social cognitive theory as the theoretical frame of reference. This set of studies was identified on the basis of the following search strategies. The author searched the EBSCOhost online research database for empirical studies that used social cognitive theory to investigate software piracy using structural models. Then, the Google Scholar search engine was used to identify additional empirical studies that may not have featured in the EBSCOhost search. Finally, the author perused the reference lists of the studies identified using the previous two approaches to find other possible sources that met the requirements for inclusion in this review. This review will be conducted as follows. First, each study will be discussed individually to allow the main research aims and findings to be presented in a meaningful manner and to be interpreted and understood against the backdrop of the specific contexts from which they emerged. In addition, the study-by-study review will focus on the range of variables included as predictors in each study, how these variables were defined and operationalised, the dependent variables the studies were committed to explaining, the interactions and temporal sequences suggested and supported by the empirical evidence, and the research design strategies used and their implications. Thereafter, the author will integrate the insights derived from these individual presentations into a discussion that highlights the main themes and trends (specific to the main aims of this study) that emerged from the empirical studies on software piracy using social cognitive theory as the guiding theoretical paradigm.

3.4.1.1 LaRose and Kim (2007)

In a study investigating intentions to download pirated music, social cognitive theory and the theory of planned behaviour were pitted against each other to investigate the explanatory power of these competing conceptualisations of human behaviour (LaRose & Kim, 2007). This research focused on the contribution of normative influences on intentions to engage in antisocial media behaviour. Conceptually, normative influences were situated within the self-regulatory mechanism as moral justification, descriptive norms, moral norms, self-identity and subjective norms in the social cognitive model. The results of this study reflected direct and significant paths from the retained normative variables (viz. moral justification [$\beta = 0.19$; $p < 0.05$] and descriptive norms [$\beta = -0.17$; $p < 0.05$]) to deficient self-regulation (which was an antecedent to intention) in the social cognitive model but there were no direct paths reported between these variables and intention; only indirect paths through the deficient self-regulation (habit) construct. The social cognitive model provided empirical evidence for direct effects between self-efficacy and outcome expectations ($\beta = 0.79$; $p < 0.01$) and outcome expectations and intention ($\beta = 0.39$; $p < 0.01$) and an indirect effect between self-efficacy and intention through the outcome expectations construct. There were no meaningful or statistically significant paths from the moral justification ($\beta = -0.13ns$) and descriptive norms ($\beta = -0.03ns$) variables to behavioural intentions in the theory of planned behaviour model leading the researchers to conclude that the impact of normative influence in this context was not supported. Thus, they concluded that the model of normative influence derived from social cognitive theory was predictively superior to the one derived from the theory of planned behaviour. The absence of the self-regulation mechanism in the theory of planned behaviour was cited as one of the main reasons that this theoretical framework was inadequate for explaining the impact of normative influences on intention to engage in music piracy.

The social cognitive model proposed by LaRose and Kim (2007) included the outcome expectations construct defined narrowly as attitudes about the social, economic and novelty-seeking benefits individuals expected to gain from engaging in music piracy. Bandura (2004a) conceptualised the outcome expectations construct as inclusive of both attitudes and subjective norms (as they have been defined in the theories of reasoned action and planned behaviour). Therefore, LaRose and Kim's (2007) operationalisation of outcome expectations appeared to deviate from Bandura's (2004a) later conceptualisation of this construct because they opted to group the subjective norms component with other normative influences including moral

justification instead of with attitudes. It is not clear what theoretical rationale was used to support this decision. It is possible that LaRose and Kim (2007) took guidance from Triandis' (1977) work on the theory of interpersonal behaviour in which norms and self-regulation were both conceptualised as part of the social factors component which was a determinant of behavioural intention. However, a direct outcome of this portrayal of subjective norms as a construct related to moral disengagement (represented in this case by moral justification) was a conceptual blurring of what Bandura (2004a) deemed to be two discrete constructs (viz. outcome expectations and moral disengagement). The fact that subjective norms was ultimately excluded entirely from the social cognitive model because unlike moral justification and descriptive norms, it did not have a significant relationship either with habit (deficient self-regulation) or intention implied perhaps, that it may not have been optimally conceptualised in the social cognitive model and may have been more predictive as a variable in its own right or as part of the outcome expectations construct instead or it may just not have been optimally operationalised as was the case in empirical research reviewed by Armitage and Conner (2001).

Taken together, normative influences, in the form of moral justification and descriptive norms, and deficient self-regulation, defined narrowly as habit, represented the self-regulation system which differentiated social cognitive theory from the theory of planned behaviour. The moral justification construct consisted of items that corresponded with Bandura's (1986) moral justification and displacement of responsibility mechanisms while the descriptive norms variable consisted of items that appeared to correspond most closely (but not exactly) with Bandura's (1986) advantageous comparison mechanism. Thus, moral disengagement was represented by three of Bandura's (1986) eight mechanisms. Perhaps, these were the three mechanisms that LaRose and Kim (2007) believed were most pertinent for explaining music piracy but they were not clear about the reasons for their choice of these mechanisms nor were they explicit about why the other five mechanisms were excluded from their definition and operationalisation of the construct. The implication of the finding that moral disengagement only had a meaningful impact on intention when music downloading behaviour had become routinised was that moral disengagement was only relevant when individuals had formed habitual behavioural repertoires. When no behaviour routinisation processes was noted there was no direct effect of moral disengagement on behavioural intention. The complete conditionality of the relationship between moral disengagement and behavioural intention on habit does not seem sensible. When behaviour becomes routinised one would expect that the need to morally disengage each time the behaviour is performed would diminish in importance or become less and less relevant compared to when

individuals performed a behaviour that deviated from their internal standards for the first time, once-off or only occasionally. It is in these situations (i.e. in the absence of behavioural routinisation) that the need to selectively activate internal controls or disengage from reprehensible conduct through moral disengagement would seem to be most important and relevant. This finding did demonstrate, however, that even when behavioural routines were developed moral disengagement did not completely fall by the wayside but played an indirect role in predicting intention.

The theory of planned behaviour model LaRose and Kim (2007) tested included a construct called deficient self-regulation. The researchers argued that the theory of planned behaviour did not recognise the self-regulation mechanism or the possibility of deficient self-regulation but included this construct anyway (possibly to retain a consistent set of constructs between the theory of planned behaviour and social cognitive theory models to facilitate a comparison between them). However, its inclusion implied that the proposed theory of planned behaviour model was not a true representation of the tenets of this theoretical framework even by LaRose and Kim's (2007) admission. Instead, the two models both appeared to be variants of social cognitive theory with different proposed paths between the normative influence variables, deficient self-regulation and intention with the "theory of planned behaviour model" indicating direct paths between the normative variables (moral justification and descriptive norms) and intention and a separate direct path between deficient self-regulation and intention while the "social cognitive model" proposed only an indirect path between the normative variables and intention through the deficient self-regulation construct. Thus, the finding that the social cognitive model appeared to be more predictive than the theory of planned behaviour model should be treated with caution because at best, it would have been possible to conclude that the social cognitive model in which habit mediated the impact of normative influences on intention appeared to be more predictive than the one in which the normative influences were envisaged to have a direct influence on intention. A second problem with the theory of planned behaviour model was that social norms or social pressures were not ultimately included as part of the normative influence variables. LaRose and Kim (2007) originally conceptualised it as one of five normative influences but then went on to drop the subjective norms component from their model when they discovered that it had no significant relationship to deficient self-regulation or intention. Thus, their proposed theory of planned behaviour model excluded the subjective norms construct, one of the three major determinants of intention which in turn was a predictor of

behaviour, once again calling into question the representativeness of the model to the theoretical underpinnings of the theory of planned behaviour.

Behavioural intention was used as the dependent variable in the study on music piracy (LaRose & Kim, 2007). This was a reasonable outcome variable since it was forward-looking and tapped into a potentiality that had not yet been realised which could logically be predicted by current perceptions and attitudes about moral disengagement, outcome expectations, self-efficacy and habit (Garbharran & Thatcher, 2009). It is useful to note that no objective measures of contextual facilitators and impediments were used as predictors in this investigation. LaRose and Kim (2007) used a cross-sectional research design where all the data were collected at one point in time. The researchers acknowledged that their approach precluded an assessment of reciprocal influences and temporal sequences which relied on a longitudinal research design and that they could not unambiguously comment on the direction of causation in their models. Bearing these limitations in mind, the following interactions were supported. Self-efficacy did not have a direct relationship with behavioural intention but impacted it through the outcome expectations variable. This was in line with Bandura's (1986) proposition that the outcomes people anticipated were dependent on their judgements of how well they would be able to perform in situations implying that self-efficacy preceded outcome expectations. The social cognitive model appeared to support this sequence but it is important to note that the definition of outcome expectations in this study was slightly different to Bandura's (2004a) conceptualisation insofar as it only comprised the attitude component and not the social pressures element. Habit impacted intention directly and also served to mediate the effect of moral disengagement on intention. This implied that moral disengagement causally preceded habit which was effectively a measure of past behaviour. This proposed sequence was problematic because it was not possible for current perceptions measured in the present to precede behaviour that had been enacted in the past. Moral disengagement had no direct causal link to intention nor did it interact with the self-efficacy or outcome expectations variables in the model precluding insight into possible interaction sequences between them.

3.4.1.2 Jacobs, Heuvelman, Tan and Peters (2012)

Jacobs et al. (2012) based their attempt to explain movie downloading behaviour on the empirical work by LaRose and Kim (2007). They refined and extended the social cognitive model originally proposed to explain music downloading. A comparison of the social cognitive models yielded by these related empirical studies highlighted the following differences. The phenomena

they were each designed to explore: music downloading versus movie downloading were regarded as fundamentally different by Jacobs et al. (2012) which resulted in differential construct definitions in some cases. Jacobs et al. (2012) conceptualised outcome expectations as consisting of novelty compulsion, completionism, economic, social and knowledge of laws elements while LaRose and Kim (2007) defined their outcome expectations construct in terms of novelty-seeking, economic and social elements. The social aspect of outcome expectations in the study on movie downloading included the social norms or social pressures element in a manner that was consistent with Bandura's (2004a) positioning of it as part of the outcome expectations variable together with attitude, while social pressures was initially conceptualised as part of normative influences together with moral disengagement by LaRose and Kim (2007) and was subsequently completely eliminated from the model when no significant relationship was found between it and deficient self-regulation or behavioural intention. Knowledge of laws pertaining to movie downloading was added to the outcome expectations construct in the study by Jacobs et al. (2012) but no such sub-component of outcome expectations existed in the LaRose and Kim (2007) study. Interestingly, knowledge of laws was measured using items that tapped into subjective perceptions of individuals' beliefs about their own knowledge and with items that measured objective knowledge about whether or not piracy was legal in the specific context in which the study was conducted. While the first set of items tapped into individuals' attitudes about their knowledge, the second set measured objective knowledge which could be labelled a personal facilitating or impeding factor in the social cognitive context. However, these two sets of variables were combined to form a sub-set of the outcome expectations variable. This characterisation suppressed the impact that objective knowledge of piracy laws could have exerted on the dependent variable as a personal factor of the facilitators and impediments construct. The dependent variable in the study by LaRose and Kim (2007) was intention to download while Jacobs et al. (2012) opted to change the dependent variable from intention to the estimated number of downloads per month. They believed this change led to an improvement in the clarity of the dependent variable and intention was completely eliminated from their model.

The exclusion of the moral justification variable in this study (Jacobs et al., 2012) implied the elimination of the moral justification and displacement of responsibility mechanisms of moral disengagement leaving only items that appeared to correspond most closely with advantageous comparison (as part of the descriptive norms construct) as the sole representative of moral disengagement in the questionnaire. Thus, the scope of the definition of moral disengagement in this study (Jacobs et al., 2012) was much narrower than that originally used by LaRose and Kim

(2007) which was already narrowly defined relative to Bandura's (1986) conceptualisation of the eight mechanisms of moral disengagement. The addition of the knowledge of movie piracy laws to the outcome expectations variable was confusing. It implied that knowledge of laws was an anticipated outcome or benefit associated with movie piracy. An inspection of the extent to which it was related to the latent outcome expectations construct (β = 0.29; $p < 0.05$) compared to the other sub-components of outcome expectations (β: 0.47-0.66; $p < 0.05$) indicated that knowledge of laws appeared to be out of place as a component of outcome expectations. In the author's opinion, knowledge of laws is more likely to be a personal facilitator or impediment than an outcome expectation. Like LaRose and Kim (2007), Jacobs et al. (2012) defined deficient self-regulation narrowly as habit and originally hypothesised a direct causal path between moral disengagement and behaviour but no direct relationship between moral disengagement and habit with the latter construct being directly linked to behaviour instead. This conceptualisation corresponded with LaRose and Kim's (2007) proposals in the "theory of planned behaviour" model.

The findings revealed a direct path between outcome expectations and behaviour (β = 0.23; $p < 0.05$); moral disengagement and behaviour (β = 0.18; $p < 0.05$) and habit and behaviour (β = 0.20; $p < 0.05$). The social norms or social pressures component of outcome expectations was also related directly to the descriptive norms component of moral disengagement (β = 0.13; $p < 0.05$). Thus, unlike the study by LaRose and Kim (2007) which did not envisage a relationship between outcome expectations and moral disengagement, Jacobs et al. (2012) suggested that social outcome expectations had a direct relationship with the advantageous comparison component of moral disengagement. Habit was eventually conceptualised as having a causal relationship with moral disengagement (β = 0.35; $p < 0.05$) which in turn causally influenced behaviour. Thus, moral disengagement was positioned as a mediator of the influence between habit and behaviour (Jacobs et al., 2012). The significant departure of the relationships between moral disengagement, habit and behaviour to what was originally proposed was not explained in detail and the researchers did not elaborate on the theoretical reasons for incorporating this dramatically different set of relationships into their final model. Although Jacobs et al. (2012) did not comment on what prompted this dramatic alteration of the temporal sequence between habit and moral disengagement, the placement of a construct tapping into past behaviour (i.e. habit) as a prelude to moral disengagement seemed to make more sense than placing past behaviour as temporally following current perceptions of moral disengagement as was the case in the study by LaRose and Kim (2007). Self-efficacy was eliminated in its entirety which implied that this study

did not corroborate the relationship between self-efficacy, outcome expectations and intention noted by LaRose and Kim (2007) in which outcome expectations mediated the impact of self-efficacy on intention. Moral justification was omitted thereby eroding the scope of the moral disengagement construct ultimately used to predict movie downloading behaviour. Jacobs et al. (2012) did not see a place for intention in their model either and it was never considered for inclusion from the outset resulting in the only forward-looking construct being eliminated from the model and being replaced by a dependent variable that tapped into past behaviour instead.

This study used a cross-sectional research design. Therefore, the use of number of downloads in a month as the dependent variable was a measure based on behaviour that individuals had already engaged in as opposed to behaviour they intended to undertake or had undertaken at some point in the future (measured at Time 2). Thus, the number of movies that individuals had downloaded on average in a month was technically an indicator of past behaviour. In a longitudinal research design it would have been possible to collect information about individuals' attitudes, perceptions and past behaviour at Time 1 and use them as the basis for predicting attitudes, perceptions and future behaviour at Time 2. However, this was not possible in a cross-sectional research design. This posed a major problem since the other social cognitive variables (viz. moral disengagement, outcome expectations, self-efficacy) measured in the present were used to predict behaviour that had already occurred in the past when in fact that behaviour was likely to have influenced current attitudes and perceptions leading to an illogical and impossible temporal sequence. A phenomenon that had already influenced current attitudes and perceptions could not be the phenomenon that a model ultimately aimed to predict because this would lead to an untenable circularity and would render the predictive exercise meaningless. It is possible that the use of a measure of past behaviour as the dependent variable confounded the findings in their study. For example, no meaningful relationships were found between moral justification and behaviour and self-efficacy and behaviour leading to their elimination from the model. Perhaps, these variables were not predictive of past behaviour because they were outcomes of it. For example, moral justification measured in the present may not have had a significant relationship with the number of movies an individual had already downloaded because it may have been used by the individual to justify or rationalise future or upcoming downloading behaviour after the past behaviour had already been enacted. Thus, it is possible that with a future-oriented dependent variable in the form of intention (in a study using a cross-sectional research design) or behaviour (measured at Time 2 in a longitudinal study) moral justification and self-efficacy may have had more predictive relevance. The deletion of these paths from the structural model was not supported by

theoretical considerations but rather appeared to be purely data-driven which was problematic because all re-specifications of structural equation models should have their basis in theory rather than be dictated by the data (Kline, 2011). The decision to delete moral justification and self-efficacy, which constituted two critical social cognitive variables, appeared to have been taken without a sound theoretical justification. Perhaps, the researchers could have looked more closely and critically at why these variables did not possess meaningful relationships with the dependent variable before discarding them. They could have eliminated these potentially useful social cognitive variables, whose value and meaning may have been lost in the analysis, because of the problematic decision to use past behaviour as the dependent variable. The erosion of the moral disengagement construct (by deleting moral justification), the omission of self-efficacy, the conceptualisation of a concurrent model that included a measure of past behaviour as the dependent variable and that did not cater for an intention construct were among some of the criticisms that warranted treating the findings and the hypothesised temporal sequences derived from the study by Jacobs et al. (2012) with caution. The cross-sectional research design did not support the examination of reciprocal relationships or temporal lags between causes and effects. Thus, even though the original model depicted a reciprocal relationship between knowledge of laws and outcome expectations, it was not technically possible to test this relationship in the context of a concurrent study. Apart from this isolated instance in which reciprocality appeared to be acknowledged Jacobs et al. (2012) did not acknowledge the bi-directional influences Bandura (1986) envisaged nor did they cater for the temporal lags necessary for logical sequences of causes and effects to play out.

3.4.1.3 Garbharran and Thatcher (2011)

Garbharran and Thatcher (2011) tested a social cognitive model to explain intention to pirate software. This constituted an earlier interpretation of the present study's Time 1 data. Past behaviour, self-efficacy, moral disengagement, outcome expectations and facilitators and impediments were included as predictors of software piracy intention (the dependent variable). Moral disengagement was a composite variable derived by aggregating items from each of the eight mechanisms of moral disengagement identified by Bandura (1986). Self-efficacy was defined as proficiency-based efficacy, outcome expectations included both the attitudes and social pressures components as envisaged by Bandura (2004a), facilitators and impediments consisted of items that tapped into individuals' subjective perceptions of aspects in their contexts (situational and macro-contextual factors) that either impeded or enhanced their intention to pirate

software and past behaviour represented the behaviour variable measured concurrently with the afore-mentioned measures. The model tested in this study explained 51% of the variance in intention to pirate software and overall model fit indices suggested a good fit to the data. Past behaviour (β = 0.35; p < 0.001), moral disengagement (β = 0.26; p < 0.001) and outcome expectations (β = 0.18; p < 0.001) had meaningful direct relationships with intention to pirate software. Self-efficacy was originally conceptualised as having a direct link to intention but the data revealed no significant direct path. Instead the impact of self-efficacy on intention appeared to be completely mediated by the facilitators and impediments construct. An earlier study by Garbharran and Thatcher (2009) revealed that self-efficacy did not contribute a statistically significant improvement to the predictive accuracy of a model including moral disengagement, self-efficacy, outcome expectations and facilitators and impediments as predictors of intention to pirate software. This finding was consistent with the point of strain identified by the Wald test in the later study (Garbharran & Thatcher, 2011) which suggested that the direct path from self-efficacy to intention could be deleted without detrimentally impacting overall model fit. The supporting empirical evidence from the first study guided the researchers' decision to eliminate the direct path from self-efficacy to intention in the later study but due to an oversight this was not explicitly stated in the second study. The indirect relationship between self-efficacy and intention through the facilitators and impediments construct was retained. Moral disengagement, outcome expectations and facilitators and impediments functioned as mediators in the model both individually and in combination. The relationship between past behaviour and intention was mediated by the moral disengagement construct; outcome expectations mediated the relationships between past behaviour and intention and self-efficacy and intention; and facilitators and impediments mediated the relationships between moral disengagement and intention, outcome expectations and intention and self-efficacy and intention. In combination, moral disengagement, outcome expectations and facilitators and impediments mediated the relationship between past behaviour and intention while outcome expectations and facilitators and impediments in combination mediated the relationships between past behaviour and intention, self-efficacy and intention and moral disengagement and intention.

The use of intention to pirate software (instead of behaviour) as the dependent variable in this study was logical based on its cross-sectional design. However, the researchers did not explicitly acknowledge the structural properties of reciprocality and temporality as important considerations in the context of social cognitive theory even though they were unable to cater for them in the absence of a longitudinal research design. Similar to the study by LaRose and Kim (2007), this

study supported the relationship between self-efficacy, outcome expectations and intention proposed by Bandura (1986). Its inclusion of past behaviour, moral disengagement, self-efficacy, outcome expectations and facilitators and impediments as predictors of intention to pirate software rendered it one of the most comprehensive social cognitive models tested to explain software piracy. However, the facilitators and impediments construct was not defined in terms of objective environmental influences in the study by Garbharran and Thatcher (2011) but as individuals' subjective interpretations of the impact of situational and sociostructural forces on behaviour which implied that the model did not technically include environmental influences in the predictive equation. When environmental influences are defined and operationalised as subjective interpretations rather than objective factors, the consequence is that the context is effectively eliminated as a predictor of behaviour and is replaced with a personal determinant of behaviour instead. In the conceptualisation of this model all the social cognitive constructs appeared to be related to each other either directly or indirectly except for moral disengagement and self-efficacy. Bandura (1986) offered no comment about the theoretical relationship between moral disengagement and self-efficacy so no relationship between them was catered for in the model by Garbharran and Thatcher (2011). This suggested that in order to explain intention to pirate software, no relationship between moral disengagement and self-efficacy was expected. The proposed model found some evidence for the role of facilitators and impediments as a mediator (of the relationships between self-efficacy and intention) and a moderator (higher self-reported facilitators and impediments significantly impacted the relationships between past behaviour and intention, past behaviour and moral disengagement, moral disengagement and intention) with stronger evidence found for its moderating role than its mediating influence. Garbharran and Thatcher (2011) offered explicit explanations of the interactions they envisaged between the social cognitive constructs their proposed model.

3.4.1.4 Garbharran and Thatcher (2009)

An earlier study by Garbharran and Thatcher (2009), which made a case for using social cognitive theory as a framework for explaining software piracy intention, assessed the contributions of moral disengagement, self-efficacy, outcome expectations and facilitators and impediments and the interaction terms between these constructs to the prediction of intention to pirate software. This constituted an earlier interpretation of the data that was used to conduct the pilot study in the present investigation. Bandura's (1986) eight mechanisms of moral disengagement were represented in the moral disengagement scale; the self-efficacy construct

was proficiency-based; outcome expectations reflected both attitudes and social norms or pressures and facilitators and impediments were defined as subjective perceptions of the situational and systemic factors that facilitated or hindered the formation of intentions to pirate software. The findings revealed that moral disengagement was the single best predictor of intention to pirate software (explaining 45% of the variance in the dependent variable) followed by facilitators and impediments (which explained 14% of the variance) in the intention to pirate software construct. The marginal contribution of the interaction term consisting of moral disengagement and facilitators and impediments (which explained 4% of the variance) to explaining intention to pirate software indicated that facilitators and impediments could have moderated the effect of moral disengagement on software piracy intention (since contextual variables, which in this case were represented by situational and systemic facilitators and impediments, are traditionally construed as exerting a moderating influence on hypothesised casual relationships in structural models). This assertion was supported in the later study by Garbharran and Thatcher (2011) in which facilitators and impediments emerged as a likely moderator of the relationships between moral disengagement and intention, past behaviour and intention and past behaviour and moral disengagement. The contribution of outcome expectations (explaining 2% of the variance in the dependent variable) to predicting intention to pirate software was also marginal in comparison with the main effects. The findings of this study suggested that self-efficacy had no significant additional contribution to make in the context of explaining software piracy intention when moral disengagement, facilitators and impediments and outcome expectations were included as predictors. In addition, preliminary evidence was found for the mediating role of facilitators and impediments on the relationship between self-efficacy and intention implying that the impact of self-efficacy on intention was absorbed through the facilitators and impediments construct. This finding was also supported in the later investigation (Garbharran and Thatcher, 2011) which found no direct relationship between self-efficacy and intention but a completely mediated interaction in which self-efficacy indirectly impacted intention through the facilitators and impediments construct.

While both studies by Garbharran and Thatcher (2009; 2011) were cross-sectional, the data in the earlier study were analysed using multiple regression analysis and moderated multiple regression analysis while the data in the later study were analysed using path analysis. Thus, while the second study could only offer tentative comments about possible causal paths and temporal sequences (which could only be more definitively commented on in the context of a longitudinal research design) the first study could not venture such comments limiting its insights to the

predictive contributions of the social cognitive variables and their interactions on intention with no possibility of tentatively understanding how the social cognitive predictors related to and interacted with each other. In the later study, on the other hand, the path analysis allowed for a model which predicted a specific interaction sequence among the social cognitive predictors to be tested. Even though it was not possible to draw definite conclusions about the manner in which the social cognitive predictors interacted with and related to one another in the cross-sectional study, these findings offered a starting point from which to identify potentially useful and important temporal sequences to test in studies using longitudinal research designs. The use of intention as the dependent variable in the context of the cross-sectional research design was reasonable and logical and avoided the conceptual challenges encountered in other studies when past behaviour was used as the dependent variable in cross-sectional research designs.

3.4.1.5 Rogers (2001)

In an unpublished doctoral thesis by Rogers (2001) social learning theory, an earlier name given to social cognitive theory by Bandura (1977), was used to explore criminal computer behaviour. While the study's primary focus was to identify the social-demographic variables unique to computer criminals, a predictive model was also tested to understand the role of differential association, differential reinforcement and moral disengagement in the prediction of criminal computer activity. Moral disengagement was defined and operationalised in terms of the four points in the self-regulation process at which Bandura's (1986) eight mechanisms were likely to be activated. A closer examination of the items used to measure moral disengagement in the questionnaire, however, revealed that only seven of the eight mechanisms were represented; there were no items tapping into displacement of responsibility situated at the point between behaviour and its consequences. Thus, the moral disengagement scale did not cover all of the eight mechanisms of moral disengagement that Bandura (1986) proposed. Other recognisable social cognitive constructs such as outcome expectations and facilitators and impediments were measured but were not included as predictors of criminal computer behaviour. The outcome expectations label was not explicitly used in this investigation but scales capturing attitudes (labelled as definitions), social pressures (including three independent measures tapping into how friends, family and bosses would react to one's criminal computer behaviour and the differential association construct which consisted of items that appeared to overlap with the afore-mentioned measures of social pressures) and the likely outcome of engaging in criminal computer behaviour captured this variable. Subjective contextual facilitators and impediments in the form of

individuals' perceptions of legal factors (including likelihood of getting caught and severity of the punishment if caught) were measured. The self-efficacy construct was not recognised as a contributor to criminal computer behaviour and was excluded from this analysis. The predictive exploration revealed that differential association and moral disengagement were significant predictors of computer crime. A second predictive model (tested as part of additional analyses performed by the researcher) in which imitation, differential association, differential reinforcement, moral disengagement, definitions and a measure of social desirability were treated as predictors of computer crime revealed that definitions and differential association were the best predictors of criminal computer behaviour. Thus, attitudes and social pressures featured as prominent predictors but moral disengagement did not. Whereas the first predictive model included only three predictors (differential association, differential reinforcement and moral disengagement), the second was extended to include six predictors. A comparative analysis of the findings from both models revealed that when the attitudes variable (in the form of the definitions construct) was added to the model, it replaced moral disengagement as a significant predictor of criminal computer behaviour) while differential association (social pressure) emerged as a significant predictor in both cases.

Rogers (2001) acknowledged that his primary aim was to understand the social-demographic characteristics of individuals who engaged in criminal computer behaviour. Therefore, tests of the predictive models of criminal computer behaviour using multiple regression analysis were secondary objectives in this investigation. As discussed earlier, multiple regression analysis only catered for relationships between the predictors and the dependent variable and did not consider how the social cognitive predictors were likely to relate to and interact with each other. A cross-sectional research design was employed which implied that the index of criminal computer behaviour used as the dependent variable was technically an indicator of past behaviour. The challenge of using a backward-looking variable instead of a forward-looking one as the dependent variable in a cross-sectional research design was discussed earlier and constituted a limitation in this study. The questionnaire used to measure the constructs of interest was newly designed and had not been tested previously in the context of a pilot study to confirm its reliability and validity. This implied that there was no earlier opportunity to fine-tune and hone the questionnaire to ensure that it was optimally designed to measure the constructs in question. This detracted somewhat from the confidence with which conclusions could be drawn from this study. The manner in which social cognitive theory had been operationalised in this study differed from the way in which it had been operationalised in the empirical research discussed

earlier due to its unique emphasis on the notion of social learning as a means to understand criminal computer behaviour. It accommodated the constructs of differential reinforcement, imitation, and social desirability which did not feature in the social cognitive models of previous empirical research on software piracy, in addition to traditional social cognitive constructs like moral disengagement and outcome expectations represented by definitions (attitudes) and differential association (subjective norms). The predictive models Rogers (2001) explored did not consistently include all the social cognitive predictors and it was unclear why the researcher proposed two discrepant models of social cognitive theory (no theoretical or practical justifications were provided). In the first model, moral disengagement was included as a predictor alongside differential association and differential reinforcement while in the second model definitions (which corresponded with the attitudes component of outcome expectations) was included together with differential association (social pressures), differential reinforcement, imitation, moral disengagement and a social desirability measure. Thus, the first model eliminated the attitudes component of outcome expectations, self-efficacy and facilitators and impediments while the second model appeared to eliminate the self-efficacy and the facilitators and impediments construct. It appeared, therefore, that Rogers (2001) questionnaire was designed to measure many more constructs than were ultimately included as predictors in the multiple regression models leaving potentially valuable information unused in this study.

3.4.1.6 Wentzell (2008)

In an unpublished study by Wentzell (2006) a moral disengagement scale was constructed to capture the rationalisations individuals used to justify their propensity to engage in software piracy. This scale captured all eight mechanisms of moral disengagement identified by Bandura (1986) and was subsequently used to measure moral disengagement as a predictor of intention to pirate software alongside attitudes, social norms and self-efficacy in a structural model of social cognitive theory in a second unpublished study (Wentzell, 2008). The moral disengagement scale was still comprised of items loading onto the eight mechanisms of moral disengagement proposed by Bandura (1986) but an exploratory factor analysis suggested a three-factor moral disengagement construct. The researcher did not verify this factor structure using confirmatory factor analysis which would have been a logical next step since structural equation modelling had been selected as the data analysis technique in this study. Instead, Wentzell (2008) adopted the three-factor solution for moral disengagement without providing a rationale for this decision. It appeared, however, that encompassed in the three factors were items loading onto all eight

mechanisms of moral disengagement. Unlike in previous empirical research by LaRose and Kim (2007) and Jacobs et al. (2012), this study ensured that the moral disengagement construct was represented by all eight mechanisms (Wentzell, 2008) even though the adopted factor structure was new. This was a strength it shared with studies by Garbharran and Thatcher (2009; 2011) which also defined and operationalised the moral disengagement construct comprehensively and ensured that all eight mechanisms were incorporated. Self-efficacy was defined as self-regulatory efficacy in this study, in line with the ethical computer self-efficacy measure proposed by Kuo and Hsu (2001), and did not include a proficiency-based component but Wentzell (2008) did not acknowledge these different components of self-efficacy and no rationale was given for why self-regulatory efficacy was selected to represent the self-efficacy variable. This definition implied that the relationship between self-efficacy and moral disengagement was likely to be an inverse one. Empirical research discussed previously consistently yielded an inverse relationship between self-regulatory efficacy and moral disengagement (Bandura et al., 1996a; 2001b) but Wentzell's (2008) finding was not consistent with this trend. A closer inspection of the self-regulatory efficacy scale revealed that the items had been reverse-scored. This implied that high scores implied low self-regulatory efficacy (i.e. individuals reported that they were unable to effectively regulate their own behaviour to curtail antisocial conduct) while low scores suggested high self-regulatory efficacy. Low self-regulatory efficacy implied that individuals were more likely to morally disengage. Therefore, high scores on the self-regulatory efficacy scale (which actually depicted low self-regulatory efficacy) were correlated with high scores on the moral disengagement scale indicating a positive relationship between these constructs. This highlighted the same fundamental meaning as the inverse relationships that were discussed earlier but due to the reverse-scoring of the self-efficacy scale, the nature of the relationship was masked. The attitudes and social pressures components of outcome expectations were included even though the outcome expectations label was not used in this study. The researcher recognised their role in the theories of reasoned action and planned behaviour but did not endeavour to show how they fitted into and were relevant in the context of social cognitive theory. There was no evidence of a construct that tapped into objective situational or sociostructural facilitators and impediments to capture environmental influences in the model.

Wentzell (2008) recognised the value of conducting a pilot study to evaluate the scales in terms of their construct validity, convergent validity and discriminant validity. However, this was not possible and was cited as a limitation. The internal reliability of the scales was explored and their factor structure was investigated with exploratory factor analysis using the principal components

method only. The researcher did not undertake to use confirmatory factor analysis to confirm the factor structure suggested by the exploratory factor analysis. This was a significant shortcoming of this investigation. Originally, the researcher set out to test a model in which moral disengagement was conceptualised as a mediator of the relationships between attitudes and intention, social pressure and intention and self-efficacy and intention but it was not clear why moral disengagement was conceptualised as a mediator of these relationships. While Bandura's (1986) lack of clarity regarding the interactions and temporal sequencing of the constructs he envisaged as constituent components of social cognitive theory left a void about how to orient these constructs in empirical tests of social cognitive models, the researcher could have explained the thought process and rationale behind the relationships captured in the structural model envisaged and tested in this study. However, this was lacking. The commencement of the study with one model and the derivation of three other models based on the findings of previous analyses suggested that this study was primarily data-driven. The researcher could have balanced this data-driven approach by providing a rationale for the proposed paths in the models based on theoretical considerations, other empirical findings and pragmatic notions of human behaviour. Despite the initial conceptualisation of moral disengagement and then self-efficacy as mediators of the intention to pirate software, no indirect effects between moral disengagement and intention or self-efficacy and intention were reported limiting the researcher's ability to comment on their role as mediator variables. This was unfortunate since information about these indirect effects could have been gleaned from the statistical results that were already generated for this analysis using SAS PROC CALIS.

The cross-sectional research design implied that the use of intention as the dependent variable was logical. Wentzell (2008) recognised that it was not possible to make causal inferences on the basis this study because of its cross-sectional research design. It was not possible to test the reciprocal relationships Bandura (1986) envisaged between the social cognitive constructs in this study and Wentzell (2008) called for future longitudinal research to explore causal relationships and bi-directional influences. The acknowledgement of the constraints presented by the cross-sectional research design demonstrated an understanding of what information and conclusions could realistically be derived and drawn from this investigation.

3.4.2 Fundamental irregularities in the social cognitive building blocks in empirical research on software piracy

Table 3.3 provides a summary of the social cognitive constructs used to predict software piracy and maps them onto the generic building blocks of the theory presented in the previous chapter. Upon first inspection, this table revealed the same fundamental inconsistencies detected in Bandura's empirical application of social cognitive theory to real-world phenomena in the previous chapter. First, the labels assigned to the variables across the software piracy studies were inconsistent. This reinforced the absence of a universal vocabulary for social cognitive theory resulting in variables that were essentially measuring the same thing being assigned very different names. While this was especially true for the outcome expectations construct, moral disengagement was also assigned different labels in the empirical research on software piracy.

Second, the software piracy research used different permutations of social cognitive constructs in their quest to explain the same phenomenon. Self-efficacy and facilitators and impediments did not feature consistently as predictors in these studies. Intention and past behaviour also did not feature consistently. When the intention variable did feature, it was treated as the ultimate outcome variable. Since all the studies captured in the table leveraged cross-sectional research designs, intention served as the only forward-looking variable that could appropriately be used as a dependent variable. Studies which used a measure of past behaviour as the ultimate outcome variable in the context of cross-sectional research designs excluded future intention as a predictor of past behaviour. In these studies (Jacobs et al., 2012; Rogers, 2001) the treatment of attitudes and perceptions measured in the present as predictive of behaviour that had already occurred in the past was conceptually confusing and temporally inaccurate. The awkward temporal sequences they proposed could also have been the reason that intention was eliminated from these studies. It would have been impossible to conceptualise a forward-looking variable measured in the present as an input to a behaviour that had already occurred in the past. Future behaviour did not feature at all in these studies due to the cross-sectional research designs they employed. Moral disengagement and outcome expectations featured consistently across the software piracy studies suggesting that they were popularly recognised as predictors of this specific instance of antisocial behaviour in the empirical research. Since moral disengagement featured as the focal variable of

Table 3.3: Comparative analysis of constituent components of social cognitive theory used in structural models to predict software piracy

SOFTWARE PIRACY								
Author	**Data analysis and research design strategies**	**Moral disengagement**	**Self-efficacy**	**Outcome expectations**	**Facilitators & impediments**	**Intention**	**Behaviour**	
							Past	**Future**
LaRose & Kim (2007)	Structural equation modelling (cross-sectional research design)	Moral justification (MJ, DISP) Descriptive norms (AC)	Self-efficacy (PSE)	Social outcomes (ATT), Novelty seeking outcomes (ATT), Economic outcomes (ATT)		Intentions to continue downloading (ultimate outcome variable)	Deficient self-regulation (habit) CD purchases in the last month (not clear how this was incorporated in the model, if at all)	
Jacobs, Heuvelman, Tan & Peters (2012)	Structural equation modelling (cross-sectional research design)	Descriptive norms (AC)		Social outcomes (SN), Economic outcomes (ATT), Novelty compulsion (ATT), Completionism (ATT), Knowledge of laws (ATT)	Knowledge of laws (objective component as opposed to attitude component would fit here as a personal factor but it's not clear whether the objective component was included as an independent predictor in the model)		Deficient self-regulation (habit) Number of downloads (the ultimate dependent variable, but it measured past behaviour based on the estimated number of movies downloaded in previous months)	
Garbharran & Thatcher (2011)	Structural equation modelling (cross-sectional research design)	Moral disengagement (MJ, EL, AC, DISP, DIFF, DOC, AOB, DEH)	Self-efficacy (PSE)	Outcome expectations (ATT, SN)	Facilitators and impediments (individuals' subjective perceptions which implied that this was not an objective measure of contextual that influenced behaviour)	Intention (ultimate outcome variable)	Past behaviour	
Garbharran & Thatcher (2009)	Multiple regression analysis (cross-sectional research design)	Moral disengagement (MJ, EL, AC, DISP, DIFF, DOC, AOB, DEH)	Self-efficacy (PSE)	Outcome expectations (ATT, SN)	Facilitators and impediments (individuals' subjective perceptions which implied that this was not an objective measure of contextual that influenced behaviour)	Intention (ultimate outcome variable)	Past behaviour	
Rogers (2001)	Multiple regression analysis (cross-sectional research design)	Moral disengagement (reconstruing conduct [MJ, EL, AC], obscuring personal agency [DIFF], disregarding injurious consequences [DOC], vilifying, blaming or devaluing the victim [AOB, DEH])		Definitions (ATT) Differential association (SN)	Social-demographic variables (age, sex, race, marital status, education, employment, previous arrest history, disposition of case) were used to create a profile of individuals who engaged in computer crimes but were not used as predictors in the structural model Differential reinforcement (subjective perceptions of legal facilitators and impediments)		Criminal computer behaviour (ultimate outcome variable)	
Wentzell (2008)	Structural equation modelling (cross-sectional research design)	Moral disengagement (reprehensible conduct and agency of action [MJ, AC, DISP, DIFF], consequences or effects and victim [DOC, AOB, DEH], euphemistic labelling [EL])	Self-efficacy (SRE)	Attitude (ATT) Social norms (SN)		Intention (ultimate outcome variable)		

MJ: Moral justification EL: Euphemistic labelling AC: Advantageous comparison DISP: Displacement of responsibility DIFF: Diffusion of responsibility DOC: Distortion of consequences AOB: Attribution of blame
DEH: Dehumanisation PSE: Proficiency-based self-efficacy SRE: Self-regulatory efficacy ATT: Attitude SN: Subjective norms

interest in this study, its presence in the empirical software piracy research provided opportunities for the author to explore it and the points of uncertainty associated with it (introduced in the previous chapter) in detail. Third, there was a lack of clarity about the dimensionality of certain social cognitive constructs based on the manner in which they were operationalised in the empirical research. Moral disengagement and outcome expectations, in particular, were treated as uni-dimensional constructs in some instances and as multi-factorial variables in others. The issue of inconsistency in moral disengagement's factor structure will be explored next.

3.4.3 Moral disengagement's factor structure in the empirical software piracy research

In the previous chapter, it was noted that Bandura and his colleagues sometimes treated moral disengagement as a unitary construct in their empirical research and at other times operationalised it as a multi-faceted variable. In his theoretical treatment of moral disengagement, Bandura (1986) unequivocally recognised it as a multi-faceted construct. Granted, in this presentation, there was uncertainty about whether it was most optimal as an eight-dimensional or a four-dimensional construct. But, essentially, from a theoretical point of view it was classified as multi-factorial. Therefore, when it was also characterised by Bandura and his colleagues as a uni-dimensional construct in their empirical research, the issue of moral disengagement's dimensionality became more complicated. What was clear, based on the theoretical presentation, was that when it was represented as a multi-dimensional variable, it ought to have been comprised of either eight or four factors to stay true to Bandura's (1986) conceptualisation. The trend of depicting moral disengagement as a unitary and a multi-faceted construct appeared to have carried over into the empirical software piracy research. However, there appeared to be a further element of complication surrounding its treatment as a multi-dimensional construct in the software piracy studies. In the lone study in which the authors interpreted it as a multi-dimensional construct (LaRose & Kim, 2007), it was characterised as a two-dimensional variable. The first factor comprised of items tapping into the moral justification and displacement of responsibility mechanisms of moral disengagement and carried the label moral justification. The second factor was labelled descriptive norms which, at face value, appeared to be unrelated to moral disengagement. However, a closer inspection of the items loading onto this construct revealed that it most closely (but not exactly) mapped onto the advantageous comparison mechanism of moral disengagement). This interpretation of moral disengagement as a two-dimensional construct had no basis in Bandura's (1986) social cognitive theory. Thus, moral disengagement's interpretation as a two-factor variable in the study by LaRose and Kim (2007)

held true to its theoretical multi-dimensional characterisation but the actual dimensionality of the construct did not correspond with either the eight or four-dimensional construal Bandura (1986) envisaged for it in his theoretical presentation.

LaRose and Kim (2007) may originally have intended for their moral disengagement construct to be uni-dimensional. However, their inclusion of descriptive norms as a separate predictor consisting of items that closely resembled the advantageous comparison mechanism, even if it was inadvertent and unintentional, rendered moral disengagement a two-dimensional variable. Jointly, therefore, the author interpreted these two discrete variables as comprising the constituent components of a two-dimensional construct in this study which implied that cumulatively three of Bandura's eight mechanisms were included as representatives of moral disengagement as a predictor of music piracy (LaRose & Kim, 2007). It was not clear why these specific mechanisms (moral justification, displacement of responsibility and advantageous comparison) were selected as more predictive of music piracy than Bandura's (1986) other five mechanisms of moral disengagement. Further, there was no logical rationale behind the grouping of moral justification and displacement of responsibility to form the first moral disengagement factor. It was clear that LaRose and Kim (2007) did not regard all eight mechanisms of moral disengagement as worthy of inclusion for explaining music downloading and, consequently, their definition of moral disengagement was not comprehensive. Jacobs et al. (2012) based their empirical study on the work by LaRose and Kim (2007) but instead of exploring music downloading as an example of software piracy, they focused on movie downloading. In their final structural model they eliminated the moral justification construct and were left with descriptive norms as the only variable representing moral disengagement. Thus, unlike LaRose and Kim (2007) who incorporated three of Bandura's (1986) eight mechanisms of moral disengagement into their structural model, Jacobs et al. (2012) only included advantageous comparison in their moral disengagement construct resulting in an even narrower depiction of it in their structural model.

Quite unlike the study by Jacobs et al. (2012), which defined moral disengagement as a unitary construct representing only one of Bandura's (1986) eight mechanisms, the other uni-dimensional portrayals of moral disengagement in the empirical studies listed in Table 3.2 tended to be based on a more comprehensive coverage of the construct as it had been presented in social cognitive theory. Garbharran and Thatcher (2009; 2011) depicted moral disengagement as a unitary construct which was measured with eight items, each representing one of the mechanisms Bandura (1986) identified. In these studies, the eight items were aggregated to yield a single

moral disengagement score. Wentzell (2008) characterised moral disengagement as a uni-dimensional construct and devised a scale consisting of three aggregated items to measure it. The first set of aggregated items was labelled reprehensible conduct and agency of action and represented the moral justification, advantageous comparison, displacement of responsibility and diffusion of responsibility mechanisms. The second set of aggregated items measured distortion of consequences, attribution of blame and dehumanisation. The final set of items represented the euphemistic labelling mechanism of moral disengagement. Wentzell (2008) suggested that this unusual representation of moral disengagement was supported in the study but did not offer a sound theoretical rationale for why it made sense to operationalise it as a singular construct consisting of three seemingly arbitrary aggregated clusters of Bandura's (1986) eight mechanisms. Rogers (2001) defined moral disengagement as a unitary variable represented by four sets of aggregated items loading onto the four points in the self-regulation process at which the mechanisms were likely to be activated. This construal aligned with Bandura's (1986) theoretical presentation of moral disengagement as an eight-dimensional construct that could be abstracted to the four points in the self-regulation process at which the mechanisms were likely to be activated. An inspection of the aggregated items revealed that moral justification, euphemistic labelling and advantageous comparison were parcelled to form the first item. The second aggregated item was formed by parcelling items that represented the displacement of responsibility mechanism. The author expected to find this mechanism paired with diffusion of responsibility as per Bandura's (1986) conceptualisation but the latter mechanism was completely eliminated in Rogers (2001) study. The third aggregated item was formed by parcelling items representing the distortion of consequences mechanism and items that appeared to tap into the moral justification mechanism. The fourth and final aggregated item was comprised of parcelled items representing the attribution of blame and dehumanisation mechanisms. Thus, in the operationalisation of moral disengagement in Rogers (2001) study only seven of the eight mechanisms of moral disengagement were represented in the aggregated items implying an incomplete coverage of Bandura's (1986) eight moral disengagement mechanisms without explanation.

The preceding discussion suggested that in the majority of cases moral disengagement was not treated as a multi-dimensional construct in the empirical software piracy research but was operationalised as a unitary construct instead. This treatment appeared to be congruent with its uni-dimensional operationalisation in the empirical research by Bandura and his colleagues presented in the previous chapter. It did, however, raise the question of why, despite its multi-

factorial conceptualisation in social cognitive theory, moral disengagement was operationalised as a single-factor construct both by Bandura and his colleagues and by the researchers who leveraged it as a predictor of software piracy. It is possible that moral disengagement received empirical support as a single-factor construct in these studies and was, therefore, operationalised as one. If this was the case, however, it was not overtly declared by the researchers as their reason for treating it in this manner. Alternatively, it could have been most convenient to test it as a predictor of antisocial conduct as a unitary construct rather than a multi-dimensional one and this could have prompted its operationalisation as a one-dimensional variable. Whatever the reason, moral disengagement was treated as a single-factor construct in many empirical investigations and this study will endeavour to explore whether it truly is a uni-dimensional construct or if its unitary nature is merely an artefact of the way in which it has been empirically researched. Thus, an exploration of moral disengagement as a uni-dimensional construct was central to this investigation.

A key aim in this study is the exploration of moral disengagement's dimensionality. Specifically, the author will test its viability as a four-dimensional construct based on the four points in the self-regulation process at which Bandura's (1986) eight mechanisms of moral disengagement are likely to be activated. Due to practical constraints which will be discussed in the Methods chapter, it was not feasible to test an eight-dimensional construal of moral disengagement in this study. However, in addition to exploring it as a four-factor construct, the author also tested its viability as a more parsimonious two-factor variable. In the next chapter, this alternate conceptualisation of moral disengagement will be presented and the author will discuss the basis on which it was derived in an effort to illustrate that its unusual factor structure was meaningful rather than arbitrary.

3.4.4 Interactions between moral disengagement and other social cognitive constructs in the empirical research on software piracy

In the previous chapter, it was recognised that Bandura (1986) did not offer a comprehensive explanation of how the building blocks of social cognitive theory were expected to cohere and interact with each other in consistent and predictable patterns in the context of integrated structural models for explaining behaviour. Moral disengagement's centrality to this study implied that its relationships with the other social cognitive constructs were of primary interest. A review of moral disengagement's interactions with self-efficacy, outcome expectations,

facilitators and impediments, intention and behaviour was conducted in the previous chapter in the context of empirical studies by Bandura and his colleagues to understand if there were any trends or patterns that could be derived. Specifically, the author focused on the issues of temporal precedence between moral disengagement and each of the other social cognitive constructs in turn, to understand which variable produced the first causal effect in the predictive equation, and directionality, to understand whether the causal relationships between moral disengagement and each of the other social cognitive variables was a positive or negative one. In this discussion, the author will compare the trends in the interactions between moral disengagement and the other social cognitive constructs that emerged in the previous chapter with those that were observed in the empirical studies on software piracy that used social cognitive theory as its theoretical frame of reference. Specifically the interactions between moral disengagement and behaviour, moral disengagement and intention and moral disengagement and self-efficacy will be explored in detail. While the author will offer comments about moral disengagement's interactions with outcome expectations and facilitators and impediments in the context of software piracy, these interactions were outside the scope of the present study. Table 3.4 forms the basis for this discussion.

3.4.4.1 The interaction between moral disengagement and behaviour in the software piracy research

A perusal of the data in Table 3.4 revealed that none of the software piracy studies included future behaviour as the ultimate dependent variable. All these studies used cross-sectional research designs resulting in past behaviour being the only viable behaviour construct in the structural models. In the empirical research by Bandura and his colleagues presented in the previous chapter, past behaviour was sometimes, in the author's opinion, erroneously positioned as temporally following moral disengagement. This was observed in the cross-sectional study conducted by Bandura et al. (1996a) in which past behaviour was treated as the ultimate dependent variable which was causally influenced by moral disengagement assessed concurrently with it in the present. It was also observed in the longitudinal study which positioned moral disengagement, measured concurrently with behaviour at Time 1, as temporally precedent to it. However, the temporal relationship in which moral disengagement measured at Time 1 temporally preceded behaviour measured at Time 2 in this study was reasonable (Bandura et al., 2001). This point will be picked up on again later in this section when the temporal interaction between moral disengagement and behaviour in the context of a longitudinal research design is

Table 3.4: Comparative analysis of the temporal sequences between moral disengagement and other social cognitive constructs in software piracy research

	SE ⇨ MD MD ⇨ SE	**OE ⇨ MD MD ⇨ OE**	**F&I ⇨ MD MD ⇨ F&I**	**INT ⇨ MD MD ⇨ INT**	**PB ⇨ MD MD ⇨ BEH**
LaRose & Kim (2007)	No causal relationship was envisaged between MD and SE	No causal relationship was envisaged between MD and OE	No F&I construct was included in the structural model	**MD ⇨ INT (+)** (No direct path between MD and INT; only an indirect one through the habit construct)	**MD ⇨ PB? (+)** (Deficient self-regulation or habit represented the measure of past behaviour) No future BEH construct was included in the structural model
Jacobs, Heuvelman, Tan & Peters (2012)	SE was included in the original model but was excluded from the final one due to the insignificant causal path between it and OE	**OE ⇨ MD (-)** (Only the social norms component of OE was conceptualised as interacting with moral disengagement and there was no causal relationship proposed between the attitude component of OE and MD)	No causal relationship envisaged between MD and F&I	No INT construct included in the structural model	**PB ⇨ MD (+)** (Deficient self-regulation or habit represented the measure of past behaviour) **MD ⇨ PB? (+)** (The average number of movies downloaded in a month was interpreted was the measure of past behaviour) No future BEH construct was included in the structural model
Garbharran & Thatcher (2011)	No causal relationship envisaged between MD and SE	**MD ⇨ OE (+)** (OE was an aggregated measure consisting of items that loaded onto both attitudes and subjective norms)	**MD ⇨ F&I (+)** (F&I consisted of a subjective measure of contextual legal and economic factors that promoted or inhibited software piracy)	**MD ⇨ INT (+)**	**PB ⇨ MD (+)** (This was a measure of whether or not individuals had engaged in software piracy behaviour in the past three months) No future BEH construct was included in the structural model
Garbharran & Thatcher (2009)	The path between SE and MD was not researched in this multiple regression analysis in which INT served as the dependent variable	The path between OE and MD was not researched in this multiple regression analysis in which INT served as the dependent variable	The path between F&I and MD was not researched in this multiple regression analysis in which INT served as the dependent variable	**MD ⇨ INT (+)**	No future BEH construct was included in the structural model
Rogers (2001)	No SE construct was included in the structural model tested in the multiple regression analysis	The path between OE and MD was not researched in this multiple regression analysis in which past criminal behaviour served as the dependent variable	No F&I construct was included in the structural model tested in the multiple regression analysis	No INT construct was included in the structural model tested in the multiple regression analysis	**MD ⇨ PB? (+)** (Past criminal behaviour was the measure of behaviour used as the ultimate dependent variable) No future BEH construct was included in the structural model
Wentzell (2008)	**SE ⇨ MD (+)** (SE was defined as self-regulatory efficacy and the items in the scale were reverse scored resulting in high scores implying low self-regulatory efficacy – thus, the positive correlation between SE and MD in this study implied that low self-regulatory efficacy correlated with high MD scores and high self-regulatory efficacy correlated with low MD scores)	**OE ⇨ MD (+)** (Only the social norms component of OE was conceptualised as interacting with MD and the attitude component of OE was completely eliminated from the structural model)	No F&I construct was included in the structural model	**MD ⇨ INT (+)**	No future BEH construct was included in the structural model

MD: Moral disengagement SE: Self-efficacy OE: Outcome expectations F&I: Facilitators and impediments INT: Intention PB: Past behaviour BEH: Future behaviour

explored. This trend of depicting moral disengagement as temporally precedent to past behaviour also featured in the empirical research on software piracy. LaRose and Kim (2007) positioned habit (a measure of past behaviour) as temporally following moral disengagement. Jacobs et al. (2012) and Rogers (2001) treated a measure of past behaviour (number of downloads a month and criminal computer behaviour respectively) as the ultimate dependent variable which temporally followed a concurrent measure of moral disengagement. The argument was made earlier that when behaviour is measured concurrently with moral disengagement, it is actually a measure of past behaviour. Therefore, to treat moral disengagement measured concurrently with past behaviour as temporally precedent to it is erroneous because moral disengagement is tapping into current attitudes and perceptions while past behaviour is referencing behaviour that has already occurred.

Technically, therefore, when behaviour is incorporated into structural models in the context of cross-sectional research designs, it should be pitched as temporally precedent to moral disengagement. This temporal sequence was observed in the studies by Jacobs et al. (2012) when habit (an indicator of past behaviour) was depicted as preceding moral disengagement, and by Garbharran and Thatcher (2011) which positioned the software piracy behaviour individuals engaged in three to four months earlier as temporally precedent to moral disengagement measured in the present. In the previous chapter, empirical research by Bandura et al. (2001a) in the context of a longitudinal research design yielded a temporal sequence in which moral disengagement at Time 1 preceded behaviour measured at Time 2. This suggested that individuals had to invoke the mechanisms required to dissociate from their internal moral standards before being in a position to enact antisocial behaviour. This temporal sequence was expected in the context of software piracy too but there was no empirical evidence to support this sequence in the studies presented in Table 3.3 due to their cross-sectional research designs. In this study, the author will endeavour to test the interaction between moral disengagement and future behaviour in a longitudinal study to comment on whether moral disengagement precedes behaviour and whether the direction of this causal interaction is positive. This will be elaborated on further in the research questions chapter.

3.4.4.2 The interaction between moral disengagement and intention in the software piracy research

Typically, intention was included in structural models of social cognitive theory as an immediate antecedent to future behaviour and as temporally following past behaviour. This was observed in the study by Bandura et al. (2001a) when intention (captured in the ruminative affectivity construct) preceded behaviour at Time 2 and when prosocial behaviour (a measure of past behaviour) preceded intention (it was mentioned earlier that the temporal sequence of intention preceding transgressive behaviour at Time 1 was not reasonable so this will not be explored further here). However, in the cross-sectional research designs used in the software piracy research by Jacobs et al. (2012) and Rogers (2001), in which a measure of past behaviour served as the ultimate dependent variable, it was conceptually challenging to cater for a forward-looking intention construct as a prelude to and a causal determinant of behaviour that had already occurred in the past. Thus, intention was not consistently included as a predictor of behaviour in the social cognitive domain and specifically in the software piracy domain. Another trend in the empirical software piracy research was for intention to be treated as the ultimate dependent variable. This was reasonable in the context of cross-sectional research designs since intention was the only forward-looking variable in these cases. In the software piracy research, LaRose and Kim (2007), Garbharran and Thatcher (2011; 2009) and Wentzell (2008) treated intention as the ultimate dependent variable. When past behaviour was included as a predictor in structural models of social cognitive theory for explaining software piracy, it was positioned as temporally precedent to intention while moral disengagement temporally followed it but preceded intention (Garbharran & Thatcher, 2011). In Table 3.3 moral disengagement consistently preceded intention and shared a positive causal relationship with it. Based on the previous discussion, when future behaviour is recognised as the ultimate dependent variable, moral disengagement is temporally precedent to it. Intention was conceptualised as an immediate antecedent to behaviour. Therefore, moral disengagement was likely to precede intention which in turn was likely to precede behaviour. This sequence in which intention acted as a mediator of the relationship between moral disengagement and future behaviour was observed in empirical research by Bandura et al. (2001a) in the previous chapter. In this study, the author interpreted moral disengagement's interaction with behaviour as inexorably intertwined with its relationship with intention given intention's close relationship with behaviour. Therefore, the temporal sequence between moral disengagement and intention will be explored in the context of a longitudinal

study and intention's role as a mediator between moral disengagement and future behaviour will be explored. This will be discussed in more detail in the research questions chapter.

3.4.4.3 The interaction between moral disengagement and self-efficacy in the software piracy research

Empirical research by Bandura and his colleagues presented in the previous chapter raised questions about moral disengagement's relationship with self-efficacy. When self-efficacy was defined as self-regulatory efficacy it was positioned as temporally precedent to moral disengagement and shared an inverse relationship with it (Bandura et al., 2001a). This finding was corroborated by Wentzell (2008) in the empirical software piracy research. Interestingly, however, when self-efficacy was defined as proficiency-based self-efficacy in the empirical research by Bandura and his colleagues, it was also conceptualised as preceding moral disengagement and shared an inverse relationship with it (Bandura et al., 2001a). However, in the study in question, the proficiency-based self-efficacy construct pertained to a behaviour that was far-removed from the behaviour the model ultimately endeavoured to explain. It measured academic self-efficacy which tapped into an individual's beliefs in their capability to achieve positive prosocial academic outcomes while the ultimate behaviour the study intended to explain was transgressive behaviour. This explained the inverse relationship between self-efficacy and moral disengagement because it implied that if individuals believed they were strong academic achievers, then they were less likely to morally disengage and were, consequently, less likely to engage in transgressive behaviour. However, this finding spawned more questions. Would the temporal precedence between proficiency-based self-efficacy and moral disengagement be the same if the proficiency beliefs being tapped into were related to an individual's perceptions of their capabilities to enact antisocial behaviour? Would there still be an inverse relationship between self-efficacy and moral disengagement under these circumstances? Unfortunately, the empirical software piracy studies did not include proficiency-based self-efficacy as a predictor in their structural models resulting in these questions being left unanswered. This study will endeavour to shed light on these questions by exploring the temporal precedence between a proficiency-based self-efficacy construct pertaining to one's capability to engage in software piracy behaviour and moral disengagement and the direction of this causal interaction.

3.4.4.4 The interaction between moral disengagement and outcome expectations in the software piracy research

In the previous chapter outcome expectations was conceptualised as consisting of two components: an attitude element and a subjective norms element. Bandura (2004a) proposed that these two aspects combined to form the outcome expectations construct. The empirical research by Bandura and his colleagues in the previous chapter suggested that moral disengagement preceded outcome expectations and shared a positive relationship with it. In the software piracy research this temporal sequence and directionality seemed to be supported when outcome expectations was defined and operationalised as an aggregation of attitudes and subjective norms. In the empirical software piracy studies by Jacobs et al. (2012) and Wentzell (2008), however, the constituent components of outcome expectations were treated as independent constructs. In these structural models, the attitudes construct was not conceptualised as having a causal relationship with moral disengagement but the subjective norms construct was. Interestingly, subjective norms preceded moral disengagement and there was a negative relationship between these constructs. This implied that when individuals believed that significant others would respond positively to them if they did not engage in software piracy (high subjective norms) then their scores on the moral disengagement scale were low because they were less likely to activate the moral disengagement mechanisms. In order to preserve the high esteem in which they were being held by significant others they opted not to engage in antisocial behaviour and, consequently, there were no antisocial behavioural choices to justify through moral disengagement. These findings hinted that while subjective norms temporally preceded moral disengagement and shared a negative relationship with it, when attitudes were added to the outcome expectations construct and were aggregated with subjective norms, the temporal sequence and the directionality of the relationship changed. Moral disengagement preceded outcome expectations in these instances and shared a positive relationship with it. While the interaction between outcome expectations and moral disengagement fell outside the scope of the present investigation, the following points were important. Depending on whether attitudes and subjective norms were aggregated or on whether subjective norms was an independent construct, the temporal sequence between moral disengagement and the variable representing outcome expectations differed. There were no studies in the software piracy domain that conceptualised an explicit link between attitudes and moral disengagement when the outcome expectations construct was split into two discrete predictors (the other construct being subjective norms). Thus, it would be insightful to research the temporal sequence and directionality between the attitudes component of outcome

expectations and moral disengagement to ascertain if these were the same as those for subjective norms. If they were, then the aggregation of attitudes and subjective norms would probably be justified. If they were not, however, then it may be more viable to treat them as separate predictors in structural models of social cognitive theory. The author believes that this would make for interesting future research.

3.4.4.5 The interaction between moral disengagement and facilitators and impediments in the software piracy research

In the study by McAlister et al. (2006) introduced in the previous chapter, the facilitators and impediments construct was positioned as temporally precedent to moral disengagement. This was a direct function of the study being conducted in response to the terrorist attack on the World Trade Centre on 11 September 2001. The terrorist attack constituted the initial facilitating or impeding factor in this study and moral disengagement and intention to engage in military force were measured afterwards in response to it. Thus, the specific context of their study necessitated the temporal sequence in which facilitators and impediments preceded moral disengagement. In the software piracy research, in contrast, a measure of individuals' subjective perceptions of the contextual facilitators and impediments that were likely to influence whether or not they pirated software (in the future) was conceptualised as temporally following moral disengagement and shared a positive relationship with it (Garbharran & Thatcher, 2011). It is important to note that this interaction was observed in the context of a cross-sectional study so commenting on likely temporal precedence could only be, at best, tentative. This finding suggested that people were likely to consider the impact of contextual facilitators and impediments after they had morally disengaged from the detrimental consequences of antisocial conduct. High moral disengagement scores were associated with high scores on the facilitators and impediments scale which implied that once individuals had justified the need to engage in antisocial behaviour to themselves, they were likely to latch onto the contextual factors that enabled this behaviour in order to facilitate its ultimate execution and tended to downplay the factors in the environment that detracted from their ability to enact the behaviour.

The study by Garbharran and Thatcher (2011) highlighted an interesting dynamic in the interaction between moral disengagement and facilitators and impediments insofar as the latter construct appeared to moderate the impact of moral disengagement on future intention and the relationship between past behaviour and moral disengagement. This dynamic was prompted by an

earlier study which found that facilitators and impediments could moderate the impact of moral disengagement on intention (Garbharran & Thatcher, 2009). While some weak evidence was found for the role of facilitators and impediments as a mediator of the relationship between self-efficacy and intention in the later study, stronger support was found for its moderating influence. This suggested that the interactions between past behaviour and moral disengagement and moral disengagement and intention (among others) were likely to be impacted by different levels of facilitators and impediments in the environment. Thus, morally disengaging from negative behaviour and its consequences was more likely to lead to the formation of future intentions to engage in software piracy in the context of strong environmental enablers and individuals who had pirated software in the past were more likely to morally disengage from the reprehensible consequences of their actions in the presence of strong environmental influences that supported the enactment of their intended antisocial conduct (Garbharran & Thatcher, 2011).

There are two additional points worth mentioning at this stage. First, the author argued that in order to truly introduce the environment as a predictor of behaviour in social cognitive theory, objective measures of environmental influences were necessary (as opposed to subjective perceptions of environmental influences). Subjective perceptions of environmental factors would take social cognitive theory back into the realm of the "cognitive" and without objective measures of environmental impacts there was no viable way to introduce the environment as a predictor of behaviour. Second, facilitators and impediments did not feature as a predictor in half of the studies presented in Table 3.3. In two other studies, no paths between facilitators and impediments and moral disengagement were envisaged. Unfortunately, as noted in the previous chapter, facilitators and impediments' interaction with moral disengagement was outside the scope of this study. Therefore, in future research it would seem prudent to include an objective measure of facilitators and impediments as a predictor of behaviour and to explore its relationship with moral disengagement by conceptualising a causal path between them. It would also be useful to examine facilitators and impediments' role as a moderator of moral disengagement's relationships with behaviour (past and future).

3.5 Methodological considerations emanating from the empirical software piracy research

It was noted in the previous chapter that the empirical research about social cognitive theory conducted by Bandura and his colleagues revealed confusing temporal sequences involving the positioning of past behaviour as the ultimate dependent variable in the context of studies that

employed cross-sectional research designs. Some empirical software piracy studies that leveraged the theories of reasoned action, planned behaviour and interpersonal behaviour and social cognitive theory suffered from this criticism which led to a fundamental confounding of the true temporal sequence of past behaviour in relation to constructs it was measured concurrently with because past behaviour was treated as an outcome of constructs that tapped into current perceptions and opinions when, in fact, it was actually a predictor of them (Eining & Christensen, 1991; Christensen & Eining, 1991; Woolley & Eining, 2006; Robinson, 2010; Rogers, 2001). When cross-sectional research designs were used, the forward-looking intention construct served as the logical dependent variable and this was observed in some of the empirical software piracy research that leveraged the popular theories of human behaviour (Al-Jabri & Abdul-Gader, 1997; Chang, 1998; Kwong & Lee, 2002; Cronan & Al-Rafee, 2008; Peace et al., 2003; LaRose & Kim, 2007; Garbharran & Thatcher, 2011; Garbharran & Thatcher, 2009; Wentzell, 2008). In this study the author intends to meaningfully position past behaviour as a predictor of constructs that tap into current attitudes and perceptions.

Although Bandura's (1986) theoretical presentation catered for the notions of reciprocality and temporality as structural properties of social cognitive theory, the empirical research he conducted to test his theory as a model for predicting human behaviour did not consistently accommodate bi-directional relationships or an explicit time-delay in the context of a longitudinal research design. In fact, Bandura (1986) recognised the possibility to research social cognitive theory in the context of cross-sectional research designs using structural models that catered only for uni-directional paths between variables. This allowed for the testing of how social cognitive determinants produced change in the first place independently of needing to understand how the resultant changes impacted the subsequent reverse interactions between the determinants. In the empirical studies on software piracy using social cognitive theory as a theoretical frame of reference only cross-sectional research designs were employed and these could only realistically accommodate uni-directional relationships. In these studies, therefore, the question of what constituted an optimal time-lag for the unfolding of causes and effects in the software piracy domain was never raised.

In this study one of the two main aims was to examine the interactions between moral disengagement and three of the social cognitive variables (viz. behaviour, intention and self-efficacy) to shed light on the temporal sequences between them and on the directionality of their causal influences. In order to accomplish this aim, the author recognised the necessity of a

longitudinal research design since this was the only way in which temporality could be meaningfully researched. It was imperative for this research objective to understand whether moral disengagement temporally preceded behaviour (past and future), intention and self-efficacy or if behaviour (past and future), intention and self-efficacy preceded moral disengagement. Since, Bandura (1986) envisaged reciprocal relationships between all the social cognitive variables, it was expected that each of these pairs of constructs would also share reciprocal relationships. It was, therefore, vital to ascertain which of these interactions produced change in the first place in the context of explaining software piracy. To accomplish this, the author opted to use cross-lagged panel models and examined the cross-paths in these models to comment on which interaction from each reciprocal relationship was likely to have been activated first. This will be discussed in more detail in the research questions, methodology and results chapters. Given that a longitudinal research design was opted for, the author also had to decide on what constituted an optimal time-lag for causes and effects related to software piracy to unfold. The only longitudinal study that leveraged a popular theory of human behaviour to understand software piracy was an investigation by Limayem et al. (2004) which drew on the theory of interpersonal behaviour. In this investigation, the researchers proposed a three-month time-delay between the measures of social factors, cognitive factors, affect, habit, facilitating conditions and intention at Time 1 and behaviour at Time 2. Since none of the other studies that leveraged the theories of reasoned action and planned behaviour and social cognitive theory used a longitudinal research design, the author used the time-lag proposed by Limayem et al. (2004) as a starting point from which to arrive at a workable time-lag for this longitudinal study. This will be discussed in more depth in the next chapter which outlines the specific research questions.

The empirical research leveraging social cognitive theory (and the theories of reasoned action, planned behaviour and interpersonal behaviour) to explain software piracy raised two additional methodological considerations pertaining to the use of pilot studies to validate new measures and the use of student samples. Unlike the studies based on the theories of reasoned action, planned behaviour and interpersonal behaviour which consistently [with a solitary exception by Robinson (2010)] used student samples to understand software piracy intention or behaviour, only one study that leveraged social cognitive theory relied exclusively on a student sample to understand piracy intention to download music (LaRose & Kim, 2007). In the study by Jacobs et al. (2012) a quarter of the sample was comprised of students which implied that three-quarters of the sample was comprised of non-students. Three-quarters of the sample consisted of respondents from an online technical forum but with no information available about their education levels and

occupations it was essentially only an assumption that they were not students. Of the six studies that used social cognitive theory to research software piracy, however, these were the only two that used student samples. Rogers (2001) conducted his research on a group of individuals who had been convicted for engaging in computer crimes while the remaining studies were conducted on groups of professionals from a range of industry sectors. Thus, the problem of generalising the findings of empirical software piracy research which plagued the studies that leveraged the theories of reasoned action, planned behaviour and interpersonal behaviour due to their use of homogenous student samples, did not seem to have carried over into the empirical studies that used social cognitive theory to research software piracy. These problems will be discussed in more detail in the methodology chapter. While at least fifty percent of the studies leveraging the theories of reasoned action, planned behaviour and interpersonal behaviour reported using pilot studies to validate the measurement instruments used to conduct the research, only one-third of the studies that used social cognitive theory to explain software piracy actually validated their measurement instruments using pilot studies and even the two that did, did not explicitly acknowledge that their measures were trialled in a pilot investigation (Garbharran & Thatcher, 2009; 2011). Wentzell (2008) acknowledged the benefits of conducting a pilot investigation to validate the measures used to explain software piracy intention and behaviour but did not undertake one and recognised this as a limitation in her study. In the present investigation, the author intends to take these methodological considerations into account by avoiding the use of student samples to maximise the generalisability of the sample. This will be accomplished by using a heterogeneous group of individuals from a range of occupational categories and industry sectors. Further, the author will undertake a pilot investigation to validate the new measures developed for assessing the social cognitive constructs used to predict software piracy behaviour in this study.

3.6 Conclusion

This chapter presented a conceptual review of software piracy and reviewed the empirical literature that leveraged the theories of reasoned action, planned behaviour and interpersonal behaviour and social cognitive theory to explain software piracy. The conceptual review highlighted the global prevalence of software piracy and the preoccupation of the owners of the copyright of digital intellectual property with finding strategies to curb its prevalence ranging from demonising the behaviour by construing it as malevolent through the vocabulary used to describe it, to formulating tangible action plans (such as increasing public awareness and

education campaigns, modernising intellectual property laws, improving the enforcement of these laws and encouraging governments to lead by example by using only licensed software) to reduce its incidence. The empirical review highlighted the utility of theories of human behaviour (viz. the theories of reasoned action, planned behaviour, interpersonal behaviour and social cognitive theory) for explaining software piracy as an instance of antisocial behaviour. Of all the social psychological theories of human behaviour considered in this review, social cognitive theory emerged as the most comprehensive theoretical framework explaining a wide range of prosocial and antisocial behaviour without having to borrow fundamental concepts and constructs from other theories (Garbharran & Thatcher, 2011).

Social cognitive theory was unique insofar as it was the only theoretical framework of the four that catered explicitly for the explanation of antisocial behaviour through its distinctive moral disengagement construct. Moral disengagement allowed individuals to selectively activate or disengage from the internal moral standards they used to regulate their own behaviour by reconstruing antisocial, harmful or unethical behaviour as benign and in the service of the greater good and honourable ends which represented a key process that had to be activated in order for individuals to engage in antisocial behaviour. Thus, examining moral disengagement's role in software piracy was essential for understanding it as an instance of antisocial behaviour. It was for this reason that moral disengagement constituted the focal variable of interest in this investigation. In order to understand moral disengagement's dimensional properties and the way in which it interacted with other social cognitive determinants in the context of software piracy, the author reviewed empirical software piracy studies that leveraged social cognitive theory. The gaps and questions that arose from this exploration in conjunction with the theoretical gaps and questions raised in the previous chapter about social cognitive theory informed the research questions that were ultimately formulated in this study. These will be discussed in the next chapter. The review of the empirical software piracy studies also revealed important methodological considerations which either lent credence to or detracted from the credibility of the results of these investigations. In the next chapter the author will explain how the beneficial methodological considerations were built into the design of the present study.

CHAPTER 4: RESEARCH QUESTIONS

4.1 Introduction

In this chapter the author will present the specific research questions that will be explored in this study. This study leveraged social cognitive theory as its theoretical frame of reference and, therefore, it is to the theoretical body of knowledge about social cognitive theory that it was designed to contribute theoretical insights. Chapter 2 highlighted the main problems that limited social cognitive theory's empirical testability and, consequently, its generalisability. The first was the lack of clarity about what constituted a generic or standard set of building blocks for predicting human behaviour. An exploration of this limitation led to the realisation that there were, in fact, two sets of constituent components in social cognitive theory, one for explaining prosocial behaviour and the other for predicting antisocial behaviour, and that moral disengagement was the vital construct, applicable uniquely to explaining antisocial behaviour, that differentiated these lists from one another. The uniqueness of moral disengagement to social cognitive theory and its unique contribution to explaining antisocial behaviour earned it a central place in this study and it constituted the focal variable of interest. A theoretical review of Bandura's (1986) conceptualisation of the moral disengagement construct revealed a lack of clarity about its dimensionality which was corroborated in empirical operationalisations of the construct. This led to moral disengagement's dimensionality being selected as the first theoretical issue of interest in this study.

The second main issue that limited social cognitive theory's empirical testability and consequent generalisability, was the lack of a consistent set of interactions between the generic social cognitive building blocks that facilitated their coherent operation as a stable theoretical framework that could be applied to a range of contexts in order to explain human behaviour. Prochaska (2006) recognised this lack of integration between the constituent components, which detracted from an understanding of how social cognitive theory worked as a cohesive theoretical framework, as a major gap. A review of Bandura's (1986) theoretical presentation revealed no substantial leads about how all the constituent components interacted as a cohesive theory so the author turned to Bandura's empirical research for clues. Specifically, since moral disengagement was the focal variable in this study, the author was interested in understanding how it interacted with the other social cognitive variables to predict antisocial behaviour. A review of the

interactions between moral disengagement and the other social cognitive constructs in Bandura's empirical studies raised some interesting issues and points of contention but it was not feasible to engage in an in-depth exploration of moral disengagement's interactions with all the other constructs in this study. Therefore, moral disengagement's interactions with behaviour, intention and self-efficacy were selected for in-depth analysis in this investigation. This issue of how the constituent building blocks of social cognitive theory interacted with each other in the context of a cohesive model and specifically, how moral disengagement interacted with select social cognitive variables constituted the second theoretical issue of interest in this study.

The first set of research questions pertained to the dimensionality of moral disengagement and the second set pertained to the interactions between moral disengagement and select social cognitive variables. It was noted in the previous chapter that in order to empirically investigate moral disengagement, it had to be activated and that this could only realistically take place in an antisocial context. Thus, a specific instance of antisocial behaviour was sought to facilitate the elicitation of moral disengagement in this study. Software piracy was identified as a specific instance of antisocial behaviour that was relatively innocuous, since it did not result in direct, physical harm to others. Therefore, the author selected it as the context in which to conduct this investigation in order to derive the theoretical insights mentioned earlier about moral disengagement's dimensionality and its interactions with other constituent building blocks in social cognitive theory. Software piracy provided a fairly non-threatening context in which to research the activation of the moral disengagement mechanism compared to other instances of antisocial behaviour which did result in grievous harm to others (such as physical violence). The context of software piracy for examining moral disengagement, therefore, offered an empirical means for attaining a broader theoretical end. Much empirical research has been conducted in the software piracy arena and some of this research leveraged social cognitive theory to explain software piracy intention and behaviour. The empirical research that leveraged psychological theories of human behaviour to understand software piracy was reviewed in the previous chapter in which special emphasis was placed on exploring those studies that used social cognitive theory as the theoretical frame of reference because they provided pertinent insights about the theoretical issues that formed the basis for this investigation. Specifically, the results of these studies provided insights about the dimensionality of moral disengagement and its interactions with relevant social cognitive variables in the specific context of software piracy (which was the exact context in which this study was conducted) and, in so doing, enabled conclusions to be drawn about the extent to which they succeeded in plugging the theoretical gaps. This was critical

because it enabled an assessment of what was still unknown or unclear about moral disengagement's dimensionality and interactions with other social cognitive constructs in the context of software piracy.

Essentially, the research questions examined in this study emanated from a consideration of the gaps in Bandura's (1986) theoretical presentation of moral disengagement in social cognitive theory, and a review of the extent to which the empirical research (which included moral disengagement as a predictor of antisocial behaviour) tended to resolve these theoretical gaps or introduce new ones. Specifically, the author reviewed empirical research conducted by Bandura and his colleagues, studies that leveraged social cognitive theory in the context of software piracy and general empirical research in which moral disengagement was examined as a predictor of antisocial behaviour.

4.2 On the dimensionality of moral disengagement

To recap, Bandura (1986) identified eight mechanisms through which internal control could be selectively activated or disengaged from reprehensible behaviour: moral justification, euphemistic labelling, advantageous comparison, distortion of consequences, displacement of responsibility, diffusion of responsibility, attribution of blame and dehumanisation. He theorised that these mechanisms of moral disengagement were predictably situated at four points in the self-regulation process. Moral justification, euphemistic labelling, and advantageous comparison operated on the nature of the behaviour itself and were used to justify the morality of, what individuals would otherwise have regarded as, reprehensible behaviour to themselves through a process of cognitive restructuring. Displacement and diffusion of responsibility operated by obscuring or distorting the relationship between actions and the effects they caused by removing personal responsibility and bestowing responsibility onto external authorities, structures, institutions or groups. Distortion of consequences operated through minimising, disregarding or misrepresenting the consequences of actions to avoid confronting the harm they caused. Attribution of blame and dehumanisation operated at the point of the recipient's consequences. Actors construed victims as deserving of negative treatment by stripping them of their humanness and by placing blame for their suffering squarely with them. Thus, moral disengagement was originally conceptualised as a complex eight-dimensional construct which could be rendered more parsimonious by abstracting the eight mechanisms on the basis of the four points in the self-regulation process at which they were likely to be selectively activated or disengaged to yield a

four-dimensional moral disengagement construct. In his theoretical presentation Bandura (1986) unequivocally conceptualised moral disengagement as a multi-dimensional construct but his dual conceptualisation of this variable raised the inevitable question of which of these multi-dimensional conceptualisations (moral disengagement as an eight or four-factor construct) was more optimal as a predictor of antisocial human behaviour and which one constituted a more meaningful way to operationalise the construct in the empirical research.

4.2.1 Moral disengagement as an eight-dimensional construct

There was no evidence that moral disengagement had been operationalised as an eight-dimensional construct by Bandura in the empirical social cognitive theory research reviewed in Chapter 2. This was noteworthy given that one of Bandura's (1986) primary theoretical portrayals of it was as a variable with eight components representing the eight moral disengagement mechanisms. Therefore, even though Bandura (1986) theoretically envisaged moral disengagement as an eight-factor construct, he did not deem it compulsory to operationalise it as one in the empirical research. It was unclear why Bandura did not readily opt to operationalise moral disengagement as an eight-factor construct but the author believes that the reasons may have been related to the challenges anticipated when collecting data about a complex variable (particularly relating to the increased length of the measurement instrument) and analysing the data obtained in a meaningful way (which would have required larger sample sizes than for simpler variables with fewer factors). In the absence of insights about moral disengagement's treatment as an eight-dimensional variable in the empirical social cognitive theory research by Bandura, the author turned to the empirical software piracy research that leveraged social cognitive theory for insights. The studies reviewed in Chapter 3 revealed that none of the researchers who used social cognitive theory to understand software piracy operationalised moral disengagement as an eight-dimensional construct. So it was not possible to derive insights about its eight-dimensional nature from the software piracy research either. Therefore, the author then cast the net wider to the general empirical research that investigated moral disengagement as an eight-factor construct. These will be discussed next.

Moral disengagement was treated comprehensively as a variable comprised of eight discrete components in two qualitative studies (Bandura, Caprara & Zsolani, 2000; White, Bandura & Bero, 2009). In the first study, the moral disengagement mechanisms reportedly used in four famous cases of corporate transgressions were explored to understand why otherwise prosocial

managers sanctioned corporate practices that resulted in socially injurious consequences. Bandura et al. (2000) drew on four case studies of corporate transgressions, which they labelled the Bhopal case, the Ford Pinto case, the Nestle case, and the Three Mile Island case, to explore the mechanisms of moral disengagement used to justify the serious socially detrimental consequences each case produced. The findings revealed that the advantageous comparison, dehumanisation and attribution of blame mechanisms were used in the Bhopal case; moral justification, displacement of responsibility and distortion of consequences were leveraged in the Ford Pinto case; moral justification and distortion of consequences were used in the Nestle case; and the mechanisms of euphemistic labelling, diffusion of responsibility and distortion of consequences were drawn on in the Three Mile Island case. Overall, the distortion of consequences mechanism was used most frequently to justify the corporate transgressions in three of the four case studies while moral justification was used in two out of the four cases. The other mechanisms of moral disengagement featured only once in one of the four case studies (Bandura et al., 2000).

In the second study the four diverse industry groups (tobacco, lead, vinyl chloride and silicosis-producing industries) whose products or production processes were considered harmful to human health were examined to understand the moral disengagement strategies they implemented to mitigate the moral consequences of their harmful corporate practices (White et al., 2009). In addition, the moral disengagement mechanisms leveraged by specific categories of personnel (scientists, executives, lawyers and PR/marketing) across these four industry groups were examined. The results revealed that the distortion of consequences mechanism of moral disengagement was most frequently used both across the industry groups and across the different personnel categories to rationalise corporate transgressions. This was in line with the findings reported for the previous study (Bandura et al., 2000). Overall, moral justification was the second most popular mechanism of moral disengagement and specifically, it was the second most popular mechanism leveraged in the tobacco and silicosis-producing industries while attribution of blame was the third most popular mechanism overall, but was the second most frequently used mechanism in the lead and vinyl chloride producing industry groups. Overall, dehumanisation was the third most popular mechanism of moral disengagement. While scientists, executives, lawyers and PR/marketing personnel leveraged the distortion of consequences mechanism most frequently to justify corporate transgressions, only scientists, executives and PR/marketing personnel relied on moral justification as the second most popular mechanism. In addition executives used euphemistic labelling equally frequently as their second choice; while lawyers tended to rely on the strategy of dehumanisation after distortion of consequences as the second

most popular mechanism of moral disengagement. Although the researchers acknowledged the diffusion of responsibility mechanism as part of Bandura's (1986) eight theoretical mechanisms of moral disengagement, the categorisation of justifications used to sanction corporate transgressions across the diverse industry groups and personnel categories did not provide evidence for its use in the documentation reviewed in this study (White et al., 2009). Therefore, unlike the previous study (Bandura et al., 2000) which supported the use of all eight mechanisms of moral disengagement as rationalisations for corporate transgressions, this study (White et al., 2009) only supported the use of seven of the eight moral disengagement mechanisms (with diffusion of responsibility not being leveraged as a justification for corporate transgressions).

These two qualitative studies were essentially descriptive in nature and, while they acknowledged moral disengagement as a comprehensive construct with eight factors, which respected and aligned with Bandura's (1986) complex theoretical conceptualisation of it, they did not empirically assess its psychometric properties as an eight-dimensional variable nor did they cast it into causal models for explaining antisocial human behaviour. For quantitative insights into the factor structure of moral disengagement as an eight-dimensional variable, based on Bandura's (1986) theoretical conceptualisation of it, the author turned to empirical studies that operationalised and tested moral disengagement as a construct with eight factors. Caprara et al. (2009) empirically investigated the dimensionality of civic moral disengagement, a construct closely derived from, and based on, Bandura's (1986) original notion of moral disengagement. They devised a 32-item scale and tested its factor structure using three alternative exploratory factor models: 1) as an eight-factor solution corresponding to Bandura's (1986) eight moral disengagement mechanisms; 2) as a four-factor solution corresponding to the four points in the self-regulation process at which individuals were likely to selectively activate or disengage from internal control and; 3) as a one-factor solution based on the results of previous empirical studies which pitched moral disengagement as a uni-dimensional construct (Caprara et al., 2009). In this section, the author will focus exclusively on the results of the eight-factor solution. Caprara et al. (2009) proposed four items for each of the eight mechanisms of moral disengagement. The theoretically-derived eight-factor Promax solution was obliquely rotated and the results of this exploration did not yield a pattern of factor loadings that was interpretable (Caprara et al., 2009).

Moore et al. (2012) constructed and tested a new measure of moral disengagement that evaluated the general propensity to morally disengage. They argued that this deviated from previous research efforts that tended to measure moral disengagement in specific contexts and with

specific groups of people (e.g. children and specific groups of adults such as sportspeople). Thus, Moore et al. (2012) aimed to design a more generalisable moral disengagement scale for explaining antisocial behaviour among a broader spectrum of people in a wider range of contexts. They worked from the premise that the measure of the general propensity to morally disengage would be uni-dimensional. Thus, although they acknowledged the eight discrete mechanisms proposed by Bandura (1986) as vital components of the construct, they did not consider them to represent eight discrete factors but rather, eight distinct facets of an essentially uni-dimensional variable. To prove that this conceptualisation of moral disengagement as a uni-dimensional measure was empirically justified, Moore et al. (2012) tested three alternate conceptualisations of the construct to examine its dimensionality and to illustrate the superiority of the uni-dimensional conceptualisation they hypothesised. These conceptualisations were of moral disengagement as an eight-factor construct; as an eight-factor construct loading onto a single second-order latent factor; and as a uni-dimensional construct. In this section only the conceptualisations of moral disengagement as an eight-dimensional construct and as a unitary second-order latent factor consisting of eight primary factors will be examined.

In these analyses moral disengagement was measured using two scales; one comprising 24 items and the other consisting of 16 items (the 16-item scale was derived from the 24-item scale by eliminating one item representing each moral disengagement mechanism). In the 24-item scale, three items represented each moral disengagement mechanism while in the 16-item scale, two items corresponded to each of Bandura's (1986) original eight moral disengagement mechanisms. The results of testing moral disengagement's dimensionality as an eight-factor construct and as a second order uni-dimensional construct consisting of eight discrete primary factors revealed no significant difference in the manner in which the models fit the data. In addition, these models did not differ significantly from those that treated moral disengagement as a unitary construct (which will be explored in more detail below). This suggested that the statistical findings alone did not offer substantial evidence for selecting one of the alternative factor structures over another. The researchers opted, therefore, to choose the most parsimonious and the least complex representation of the construct as the most viable one, which they took forward into their further investigations. This translated into the adoption of the uni-dimensional conceptualisation of the propensity to morally disengage scale in which the eight facets depicting moral disengagement were calculated using simple arithmetic averages rather than complex confirmatory factor analysis (Moore et al., 2012). The author noted that although this study claimed to explore the dimensionality of the propensity to morally disengage construct, the researchers did not provide

details of the patterns of the factor loadings for each solution. They only provided the overall model fit indices. In the author's opinion, both these pieces of information were necessary to comprehensively understand the results of the alternative factor solutions and to comment on whether the factor loadings in the eight-factor solution and the second-order uni-dimensional solution comprised of eight first-order factors supported their respective factor structures. However, in the absence of information about the factor loadings, the author believed that the researchers presented incomplete evidence in support of the construct's alternative factor structures (Moore et al., 2012).

Thus, the results of the empirical research that treated moral disengagement as an eight-dimensional construct revealed that it either did not work at all as an eight-factor solution but rather as a uni-dimensional variable (Caprara et al., 2009) or that it worked equally well as an eight-factor construct, a second-order uni-dimensional construct with eight first-order factors and as a conventional uni-dimensional variable (comprising only first-order factors) and therefore, in the interests of parsimony and minimal complexity, the simpler uni-dimensional interpretation (consisting of first-order factors only) was opted for (Moore et al., 2012). In both cases, the findings suggested that an alternative uni-dimensional conceptualisation was likely to be more viable which led to the conclusion that moral disengagement as an eight-factor construct was not deemed the most optimal interpretation. This called into question the feasibility of Bandura's (1986) eight-dimensional theoretical presentation of the construct in empirical circles. In the light of the lack of adequate empirical support for the operationalisation of moral disengagement as an eight-factor construct, the author turned to an examination of its viability as a four-factor variable, in line with the second of Bandura's (1986) conceptualisations in his dual theoretical presentation of it in social cognitive theory.

4.2.2 Moral disengagement as a four-dimensional construct

There was evidence that moral disengagement had been operationalised as a four-dimensional variable in the empirical research by Bandura and his colleagues. A study that examined the relationship between moral disengagement and military force in relation to the 11 September 2001 terrorist attack revealed support for it as a construct with a four-factor structure (McAlister et al., 2006). The factors identified in this analysis were moral justification, minimisation of detrimental effects, disavowal of responsibility and dehumanisation. While these four factors generally corresponded to the four loci in the self-regulatory process where moral disengagement

mechanisms were likely to be activated, they did not correspond exactly and further, they did not represent the complete set of mechanisms proposed by Bandura (1986). In social cognitive theory moral justification, euphemistic labelling and advantageous comparison were clustered together in the behaviour locus (at the point of the behaviour). However, McAlister et al. (2006) only grouped moral justification and advantageous comparison together at the behaviour locus under the moral justification label and moved euphemistic labelling to the outcome locus under the minimising consequences label where it was grouped with distortion of consequences. Originally, Bandura (1986) envisaged the distortion or minimising of consequences as a solitary mechanism that constituted the outcome locus (at the point of the consequences of behaviour). McAlister et al. (2006), however, conceptualised the outcome locus as consisting of both the euphemistic labelling and the distortion of consequences mechanisms. Displacement of responsibility and diffusion of responsibility were mechanisms that existed at the point between behaviour and its consequences in the agency locus in the original conceptualisation of social cognitive theory. In McAlister et al.'s (2006) model these two mechanisms were clustered together in the agency locus just the way Bandura (1986) intended under the label non-responsibility. Finally, Bandura (1986) conceptualised attribution of blame and dehumanisation in the recipient locus (at the point of the victim) but McAlister et al. (2006) only included the dehumanisation mechanism as part of the dehumanisation factor and completely omitted the attribution of blame mechanism. Therefore, the manner in which McAlister et al. (2006) conceptualised the four factors of moral disengagement differed from Bandura's (1986) conceptualisation of the four points in the self-regulation process at which the mechanisms were likely to be activated. Euphemistic labelling was removed from the behaviour locus, labelled the moral justification cluster, and was re-positioned in the outcome locus, termed minimising consequences; and attribution of blame was removed from the recipient locus, labelled dehumanisation, and was completely omitted from the moral disengagement construct altogether (McAlister et al., 2006). This implied that instead of being represented by eight mechanisms, as Bandura (1986) originally intended, the moral disengagement construct leveraged by McAlister et al. (2006) was only represented by seven. Due to the re-grouping of the euphemistic labelling mechanism and the omission of the attribution of blame mechanism, McAlister et al.'s (2006) treatment of moral disengagement as a four-dimensional construct did not correspond exactly with Bandura's (1986) theoretical conceptualisation of it as a four-factor variable in social cognitive theory.

Another study which examined the role of moral disengagement in the execution process (Osofsky et al., 2005) also lent some support to the notion of moral disengagement as a four-

dimensional construct and found that while the four factors, emerging from the principal component factor analysis solution using Varimax rotation, once again, appeared to correspond to the loci in the self-regulation process at which the mechanisms were likely to be selectively activated or disengaged (Bandura, 1986), a closer examination revealed some deviations. In this study moral disengagement mechanisms from the behaviour and outcome loci (specifically moral justification, advantageous comparison, distortion of consequences) combined to constitute the first factor labelled moral justification. Notably, the euphemistic labelling mechanism did not seem to feature as expected in this factor nor did it appear to feature in any of the other three factors. Further, the coupling of the mechanisms from the behaviour locus with the mechanism from the outcome locus was unique to this study. The second factor consisted of items that tapped into economic and social justifications. In Bandura's (1986) original conceptualisation, economic and social justifications for executing inmates which would ordinarily have been grouped under the moral justification label. However, in the study by Osofsky et al. (2005) they separated out in the factor analysis into a factor in their own right. The third factor encompassed the dehumanisation mechanism and, once again, it was not accompanied by the attribution of blame mechanism which did not feature at all as part of this four-factor solution while displacement and diffusion of responsibility constituted the fourth factor which was labelled non-responsibility (Osofsky et al., 2005). Due to the re-grouping of the mechanisms in the behaviour locus with the one from the outcome locus and the complete omission of the euphemistic labelling and attribution of blame mechanisms, Osofsky et al.'s (2005) treatment of moral disengagement as a four-dimensional construct also did not correspond exactly with Bandura's (1986) theoretical conceptualisation of it as a four-factor variable in social cognitive theory nor was it identical to the four-factor conceptualisation proposed by McAlister et al. (2006).

Interestingly, none of the studies that used social cognitive theory to explain software piracy operationalised moral disengagement as a four-dimensional variable. These studies tended to treat it as uni-dimensional and the single factor structure of the moral disengagement measures they employed will be examined in more detail later in this section. While the empirical studies by Bandura and his colleagues reviewed above offered some support for the operationalisation of moral disengagement as a four-dimensional construct, it was noted that none of their treatments of moral disengagement envisaged four factors that corresponded exactly to the four theoretical points in the self-regulation process at which Bandura (1986) proposed that the mechanisms were likely to be selectively activated. Other examinations of moral disengagement, defined more precisely in terms of the four points in the self-regulatory process Bandura (1986) envisaged,

however, did not (Caprara et al., 2009). The civic moral disengagement variable was tested as a four-dimensional construct in which the four factors aligned with the loci in Bandura's (1986) self-regulation system at which the mechanisms of moral disengagement were likely to be activated (viz. the behaviour locus, the agency locus, the outcome locus and the recipient locus). The theoretically-derived four-factor Promax solution was obliquely rotated and the results of this exploration of moral disengagement as a four-dimensional variable also did not yield a pattern of factor loadings that was interpretable (Caprara et al., 2009).

Thus, empirical tests of moral disengagement as a four-dimensional construct by Bandura and his colleagues (Osofsky et al., 2005; McAlister et al., 2006) revealed support for a four-factor structure but these solutions differed from one another and neither of them aligned exactly with Bandura's (1986) theoretical four-dimensional conceptualisation of moral disengagement. Further, when an attempt was made to test a four-factor moral disengagement variable defined exactly as Bandura (1986) proposed in his theoretical presentation, the factor solution that was yielded was not interpretable (Caprara et al., 2009). These findings suggested that moral disengagement as a four-factor construct defined precisely in terms of Bandura's (1986) theoretical conceptualisation of it, with each factor representing one of the four points in the self-regulation process at which moral disengagement was likely to be activated, did not receive empirical support in the studies examined in this review. In fact, the empirical findings suggested either that alternative four-factor structures were viable (Osofsky et al., 2005; McAlister et al., 2006), or that the theoretical four-factor structure proposed by Bandura (1986) did not work and that a uni-dimensional conceptualisation of moral disengagement was more viable (Caprara et al., 2009). Taken together the insights gleaned from the preceding discussion about moral disengagement as either eight or four-dimensional variables, as outlined in Bandura's (1986) theory, revealed a gross lack of empirical support by Bandura and his colleagues, in the software piracy research that leveraged social cognitive theory, and in the general empirical research reviewed in this chapter. Instead, Bandura and his colleagues conducted research that supported the operationalisation of moral disengagement as a uni-dimensional construct; this, despite Bandura's (1986) dual theoretical conceptualisation of it as either an eight or four-factor multi-dimensional variable. These empirical studies paved the way for other research that acknowledged the possibility that moral disengagement may not be a multi-dimensional construct at all but a uni-dimensional one. This was evident in the empirical research by Bandura and his colleagues, the software piracy studies and in the empirical research in general.

4.2.3 Moral disengagement as a unitary construct

Despite Bandura's (1986) portrayal of moral disengagement as a multi-dimensional construct in his theoretical presentation, the first empirical evidence that supported moral disengagement as a uni-dimensional construct and not a multi-dimensional one, appeared to emerge from empirical research in which Bandura was credited as an author. Bandura and his colleagues found support for moral disengagement as a unitary construct and operationalised it as one in causal models that predicted aggressive, delinquent and transgressive behaviour (Bandura et al., 1996a; 2001b). This was noteworthy given that Bandura's (1986) theoretical conceptualisation of the construct as multi-dimensional (either as an eight-factor or a four-factor construct), did not cater for its interpretation as a single-factor variable. Bandura et al. (1996a) conceptualised moral disengagement as a predictor of harmful (delinquent and aggressive) behaviour in separate structural models alongside other social cognitive variables. The moral disengagement scale they developed was extensively tested prior to being used as a predictor in this study. It consisted of 32 items; with four items representing each of the eight mechanisms of moral disengagement originally proposed by Bandura (1986). The factor structure of the moral disengagement scale was tested using a principal components factor analysis with Varimax orthogonal rotation. The results revealed a single factor structure for moral disengagement that accounted for 16% of the variance. In the light of this finding (and in the absence of multiple factors being yielded in the factor solution), the researchers opted to aggregate the responses to the items to produce a composite measure of moral disengagement which they proceeded to use in the structural model (Bandura et al., 1996a). In a later longitudinal study by Bandura et al. (2001b), which aimed to predict transgressive behaviour, the moral disengagement scale also consisted of 32 items; with four items representing each of the eight mechanisms originally proposed by Bandura (1986) and a factor analysis also revealed a unitary factor structure with all 32 items loading onto the principal factor. As in the previous study by Bandura et al. (1996a), these researchers summed the responses to the items to produce a composite measure of moral disengagement, in the light of its uni-dimensional factor structure, which was carried forward into the structural model for predicting transgressive behaviour (Bandura et al., 2001b).

A closer examination of the data analysis strategies used to arrive at the conclusion that moral disengagement was most optimally interpreted as a uni-dimensional construct in these empirical studies yielded the following important insights. Bandura et al. (1996a; 2001b) essentially derived their results from principal components factor analysis with orthogonal Varimax rotation, which

was an exploratory technique, and appeared to accept the uni-dimensional interpretation of moral disengagement that emerged from this analysis without further examination. Exploratory factor analysis, of which principal components analysis was considered an example, was designed to explore the most probable factor structure for the relationships between a set of observed variables while confirmatory factor analysis was used to test the probability that a particular hypothesised factor structure was supported or confirmed by the data (Cramer, 2003). Thus, while Bandura et al. (1996a; 2001b) were able to comment on the likely factor structure of moral disengagement using principal components exploratory factor analysis, they did not undertake to verify this possible factor structure using confirmatory factor analysis which, in the author's opinion, would have been the logical next step. Consequently, the author believes that before accepting the results from these analyses, it would have been useful to engage in further confirmatory factor analyses to examine moral disengagement's dimensionality (specifically, its multi-dimensionality) in more detail. These confirmatory techniques should have tested moral disengagement as an eight-factor solution in which the eight theoretical moral disengagement mechanisms were treated as *a priori* factors and as a four-factor solution in which each of the four *a priori* factors were represented by an amalgam of the mechanisms that were likely to be activated at the four points in the self-regulation process that Bandura (1986) envisaged in his theoretical presentation. In the author's opinion, this interpretation of moral disengagement as a unitary variable in the empirical research by Bandura and his colleagues seemed to be constructed on a less than stable foundation. Interestingly, despite the fact that the dimensionality of moral disengagement in these empirical studies (Bandura et al., 1996a; 2001b) deviated from Bandura's (1986) theoretical conceptualisations of it as a multi-dimensional construct, these researchers did not undertake to engage in a more detailed examination of the scale's dimensionality; a response that the author would have expected given the incongruence between the theoretical presentation and the empirical findings. Notwithstanding the flimsy foundation on which the author believes it was based, Bandura's endorsement of the conceptualisation of moral disengagement as a unitary construct, simply by featuring as one of the authors of the papers in which the results of these studies were published, seemed to have paved the way for other researchers to embrace moral disengagement as a uni-dimensional variable even though it was originally conceptualised as multi-dimensional in his theoretical presentation (Bandura, 1986).

Similar to the empirical studies in which Bandura was credited as an author, the software piracy research (reviewed in Chapter 3) generally conceptualised and offered support for moral disengagement as a uni-dimensional variable. However, in the majority of these studies the

dimensionality of moral disengagement was not explicitly tested using factor analysis (either exploratory or confirmatory). In fact, Wentzell (2008) was the only researcher who explicitly reported subjecting a 20-item moral disengagement scale to an exploratory factor analysis before including it as a predictor of intention to pirate software in a structural model. The result of the principal components factor analysis was support for moral disengagement as a three-factor variable (see section 3.4.1.6 in Chapter 3 for details of this finding). Wentzell (2008) did not undertake to verify this finding using confirmatory factor analysis. Instead, on the basis of this result moral disengagement was operationalised in the path model as a composite uni-dimensional variable consisting of the three parcelled items capturing the three-factor structure that was supported in the exploratory factor analysis. All eight mechanisms of moral disengagement were represented in the composite items. Wentzell (2008) did not attempt to verify the findings of the exploratory factor analysis by subjecting the moral disengagement scale to a confirmatory factor analysis. Unlike, Bandura et al. (1996a; 2001b), who appeared to aggregate all 32 items in their scale into a single composite score to represent moral disengagement as a uni-dimensional construct, Wentzell (2008) undertook to reflect the three-dimensional nature of moral disengagement in a single composite variable represented by three aggregated sets of items. This treatment of moral disengagement was not empirically supported by confirmatory factor analysis and there was no clear theoretical rationale for why it was treated in this way (Wentzell, 2008). What was clear, however, was that despite the preliminary support Wentzell (2008) found for moral disengagement as a possible multi-dimensional construct, it was operationalised as a uni-dimensional variable in the path model and in this format (without confirmatory empirical evidence to support this conceptualisation), it was considered viable as a predictor of intention to pirate software.

In the remaining software piracy studies that leveraged social cognitive theory (LaRose & Kim, 2007; Jacobs et al., 2012; Rogers, 2001; Garbharran & Thatcher, 2009; 2011) it appeared that the researchers started from the assumption that moral disengagement was a uni-dimensional construct and they operationalised it as such in their structural models without testing its factor structure using either exploratory or confirmatory factor analysis. Thus, the explicit examination of moral disengagement's dimensionality did not appear to be an objective in these studies. It was also noted that the way in which the construct was defined in the studies by LaRose and Kim (2007), Jacobs et al. (2012) and Rogers (2001) did not include all eight of Bandura's (1986) theoretical mechanisms of moral disengagement. Therefore, it was not technically possible to assess the dimensionality of moral disengagement as a generalised, global construct. While these

were significant shortcomings in the empirical software piracy studies, they were not confined to this domain and extended to the general empirical research that included moral disengagement as a predictor of antisocial human behaviour. These studies will be reviewed next.

Bandura's (1986) theoretical conceptualisation of moral disengagement as a multi-dimensional construct introduced questions about whether it was more predictive as an eight or four-factor construct. His empirical findings, which supported the conceptualisation of moral disengagement as a unitary construct instead (Bandura et al., 1996a; 2001b), exacerbated this confusion about its dimensionality and raised further questions about whether moral disengagement was multi-dimensional at all or if it was a single-factor construct. Generally, researchers who leveraged the moral disengagement construct in their empirical studies responded to the confusion about its dimensionality in one of two ways. The first group of researchers worked from the premise that moral disengagement was potentially multi-dimensional. Caprara et al. (2009) tested moral disengagement as an eight, four and one-factor construct to assess which interpretation was most viable. Hymel et al. (2005) conceptualised moral disengagement as a four-dimensional construct but found no empirical support for this multi-dimensional interpretation which led them to test it as a single-factor construct based on statistical evidence that supported this uni-dimensional construal. Boardley and Kavussanu (2007) hypothesised that their moral disengagement in sport scale would consist of eight factors in line with Bandura's (1986) theoretical conceptualisation of moral disengagement as an eight-dimensional construct. They also treated it as a four and one-factor construct in line with previous empirical findings. Their results yielded support for a never-before considered six-factor conceptualisation of moral disengagement (which will be explored in the context of alternative conceptualisations of the moral disengagement construct in section 4.2.4 below) and demonstrated a lack of confidence in moral disengagement as a uni-dimensional variable (Boardley & Kavussanu, 2007). The second group of researchers started with the hypothesis that, based on Bandura's empirical support for moral disengagement as a uni-dimensional construct, moral disengagement was, in fact, a single-factor construct and designed their studies to test this hypothesis (Jackson & Sparr, 2005; Pelton et al., 2004; Moore et al., 2012; Passini, 2012; Hyde et al., 2010; Young et al., 2007; Aquino et al., 2007; South & Wood, 2006). The author will explore the general empirical studies that tested moral disengagement as a uni-dimensional construct from these two groups next.

Caprara et al. (2009) developed a 32-item scale and tested it as an eight-factor solution, a four-factor solution and a single-factor solution using exploratory factor analysis with oblique Promax

rotation first. Based on the results from this exploratory analysis the researchers arrived at the preliminary conclusion that the eight and four-factor interpretations of moral disengagement were not supported and resorted to a one-factor solution for which they found support, and which they carried forward into subsequent confirmatory factor analyses. In the confirmatory factor analysis segment of their study, Caprara et al. (2009) tested four alternative models. First, they assessed a one-factor model; second, they tested a four-factor model based on the four loci in the self-regulation process at which the moral disengagement mechanisms were likely to be activated; third, they evaluated a second-order model in which moral disengagement was represented by four first-order factors (derived in the same way as the four factors that featured in the second model) and one higher-order factor; and fourth, they tested an eight-factor model in which each factor represented one of Bandura's (1986) original mechanisms of moral disengagement. The results of the confirmatory factor analysis supported the conceptualisation of moral disengagement as a one-factor construct but tests of the other three models yielded ill-defined solutions. Thus, Caprara et al. (2009) concluded that moral disengagement was most viable as a uni-dimensional construct on the basis of results from both exploratory and confirmatory factor analyses and because they did not find empirical support from either the exploratory or confirmatory factor analyses for moral disengagement as an eight or four-factor variable or as a second order uni-dimensional variable based on four primary factors. Further, a review of the moral disengagement scale used by Caprara et al. (2009) demonstrated that all eight mechanisms were represented in the 32 items. On the basis of these considerations the author treated these findings, which supported moral disengagement as a uni-dimensional variable, with some degree of confidence.

Hymel et al. (2005), on the other hand, started by testing their four-dimensional conceptualisation of moral disengagement using principal components factor analysis with Varimax rotation and concluded, on the basis of these results, that their moral disengagement scale (which consisted of 18 items) did not possess a four-factor structure but was uni-dimensional with 13 out of 18 items loading onto a single main factor. However, they did not confirm these results with a confirmatory factor analysis and, therefore, the findings were treated with an element of caution. In addition, while the researchers explicitly stated which items loaded onto the four points in the self-regulation process at which the moral disengagement mechanisms were likely to be activated, they did not map the items within each of these four categories to the individual mechanisms that were likely to be activated at each point to highlight whether or not all eight mechanisms were catered for in their 18-item scale. The author reviewed the items and observed

aspects of moral justification, euphemistic labelling and advantageous comparison in the cognitive restructuring factor, displacement of responsibility and diffusion of responsibility in the minimising agency factor, distortion of consequences in the distortion of negative consequences factor and attribution of blame in the blaming/dehumanising the victim factor. There was no evidence that the dehumanisation mechanism of moral disengagement had been specifically catered for in this last factor. Thus, only seven of Bandura's (1986) eight mechanisms of moral disengagement appeared to have been included in this investigation, resulting in an incomplete treatment of the construct as the basis for this examination of its dimensionality. Despite the cautionary note about the conclusion drawn from this study about moral disengagement as a uni-dimensional construct, it did offer interesting and novel insights about moral disengagement's dimensionality that appeared to have been overlooked and glossed over by the researchers in favour of a uni-dimensional conceptualisation. These will be discussed in section 4.2.4 below in the context of possible alternative conceptualisations of moral disengagement's dimensionality .

Boardley and Kavussanu (2007) started from the premise that moral disengagement was an eight-dimensional construct in line with Bandura's (1986) original theoretical conceptualisation. Due to empirical support for it as a four-factor and a single-factor construct, these conceptualisations were also tested. These researchers used both exploratory and confirmatory factor analyses to determine the underlying factor structure of their moral disengagement in sport scale. However, whereas other researchers (Caprara et al., 2009; Hymel et al., 2005) subjected their entire moral disengagement scales to exploratory factor analysis, Boardley and Kavussanu (2007) undertook to subject the items within each of Bandura's (1986) eight mechanisms of moral disengagement to separate exploratory factor analyses using the principal components analytical method. Thereafter, they subjected the entire moral disengagement in sport scale to confirmatory factor analysis and tested eight, four and one-factor solutions. Thus, this study was different from the other studies that investigated the underlying factor structure of entire moral disengagement scales using exploratory factor analysis and therefore, it was not surprising that Boardley and Kavussanu's (2007) exploratory factor analysis results differed from those of the other researchers (Caprara et al., 2009; Hymel et al., 2005). It was interesting, however, that their confirmatory factor analysis results for moral disengagement as a single-factor construct was not supported as a viable interpretation of the construct as it had been in the other studies. An alternative conceptualisation of moral disengagement as a six-factor construct emerged as the most viable interpretation.

The second group of researchers worked from the premise that moral disengagement was a unitary construct and either overtly tested this hypothesis using factor analytic techniques as part of their research (Jackson & Sparr, 2005; Pelton et al., 2004; Moore et al., 2012) or simply operationalised moral disengagement as a single-factor construct and included it as a uni-dimensional predictor in structural models without explicitly testing its factor structure (Passini, 2012; Hyde et al., 2010; Young et al., 2007; Aquino et al., 2007; South & Wood, 2006). Jackson and Sparr (2005) and Pelton et al. (2004) used principal components exploratory factor analysis to test the probable underlying factor structure of their moral disengagement scales. The results from these analyses confirmed their original hypothesis that moral disengagement was a uni-dimensional construct. These researchers accepted the single-factor solution as the most likely factor structure for moral disengagement (without pursuing confirmatory factor analysis to verify this finding) and Pelton et al. (2004) proceeded to operationalise moral disengagement as a uni-dimensional construct in their structural model for explaining the relationship between parenting and childhood aggression and delinquency.

Moore et al. (2012), on the other hand, used confirmatory factor analysis to test moral disengagement as a uni-dimensional construct. Like Jackson and Sparr (2005) and Pelton et al. (2004), they started from the premise that moral disengagement was a unitary construct but unlike the other researchers, they used confirmatory factor analysis to verify its uni-dimensional factor structure (Moore et al., 2012). Moore et al.'s (2012) study was also unusual because it not only undertook to investigate moral disengagement as a single-factor construct in the way that the other researchers had but it also investigated moral disengagement as a multi-dimensional variable based on Bandura's (1986) original eight-factor conceptualisation. This was noteworthy for a study that was constructed on the premise that moral disengagement was a unitary construct (Moore et al., 2012). Moore et al. (2012) tested three different variants of a moral disengagement scale; the first was comprised of 24 items, the second consisted of 16 items and the third was constructed with eight items. The 16 and 24 item measures were subjected to confirmatory factor analysis and three *a priori* factor structures were tested in each case. Moral disengagement was assessed as a single-factor construct, as an eight-factor variable, and as a second-order uni-dimensional construct with eight primary factors and one secondary factor. The third version of the moral disengagement scale consisting of eight items was tested with confirmatory factor analysis for a single-factor structure. The findings revealed the strongest support for moral disengagement as a unitary construct using the eight item measure (Moore et al., 2012). Thus, all

the studies that were founded on the premise that moral disengagement was uni-dimensional and that explicitly tested its dimensionality supported a single-factor interpretation.

Interestingly, Jackson and Sparr (2005) and Moore et al. (2012) adopted the same unusual approach for constructing their moral disengagement scales. They each started with a large item pool; Jackson and Sparr (2005) started with 27 items and Moore et al.'s (2012) item pool originally consisted of 47 items in the pre-test phase of their study. Various statistical procedures were applied to these item pools (including internal consistency reliability analyses and exploratory factor analyses) to ultimately yield scales consisting of eight items. These items were identified as the most representative of each of Bandura's (1986) original eight mechanisms of moral disengagement in these studies. Thus, the researchers (Jackson & Sparr, 2005; Moore et al., 2012) undertook to ensure that they accommodated all eight mechanisms of moral disengagement in their scales rendering their tests of its dimensionality as a generalised, global construct more meaningful than if some of the mechanisms had been omitted. The scale used by Pelton et al. (2004) consisted of 32 items and initially represented all eight mechanisms of moral disengagement, as defined by Bandura (1986), until the researchers omitted all the items loading onto the euphemistic labelling mechanism as a result of findings from their pilot testing, which indicated that respondents had difficulty comprehending the meaning of the euphemistic language. Thus, the scale they ultimately tested only reflected seven of Bandura's (1986) original eight mechanisms and was, consequently, incomplete. Therefore, the dimensionality of an incomplete moral disengagement scale was tested and the results of this test should, in the author's opinion, be interpreted with caution because it was, for all intents and purposes, a test of a scale that did not comprehensively represent Bandura's (1986) moral disengagement construct. The findings of Pelton et al.'s (2004) study technically suggested that seven of Bandura's mechanisms of moral disengagement seemed to load onto a single factor in the context of an exploratory factor analysis.

In the studies that assumed that moral disengagement was a unitary construct and operationalised it as such in structural models for explaining a range of different behaviours, there were inconsistencies in the composition of the moral disengagement scales. Some included items that represented all eight of Bandura's (1986) mechanisms of moral disengagement (South & Wood, 2006) while others did not (Young et al., 2007; Aquino et al., 2007). Further, some studies were not clear about whether or not their moral disengagement scales represented all eight of Bandura's (1986) mechanisms (Hyde et al., 2010; Passini, 2012). South and Wood (2006) found

support for moral disengagement as a mediator of the relationship between bullying in prisons and the perceived importance of social status among prisoners. A 32-item moral disengagement scale was constructed in which each of Bandura's (1986) eight moral disengagement mechanisms were represented with four items. While it was not explicitly stated, it seemed that the researchers reduced the items in the moral disengagement scale to a single value to facilitate its use in the context of the mediation model (South & Wood, 2006). Hyde et al. (2010) also used a 32-item moral disengagement scale in their study. They explicitly acknowledged reducing the scores for the 32 items into a single moral disengagement score by calculating the mean to facilitate its use as a predictor in a structural model for explaining antisocial behaviour. However, Hyde et al. (2010) were not explicit about whether or not their scale accommodated all eight moral disengagement mechanisms proposed by Bandura (1986). A similar situation arose in the study of the relationship between moral disengagement and delinquency (violence and vandalism) mediated by drug use (Passini, 2012). A 16-item moral disengagement scale was used and the researchers acknowledged that these items depicted the different mechanisms by which moral self-sanctions could be disengaged from antisocial conduct. However, they were not clear that all of Bandura's (1986) original eight moral disengagement mechanisms were represented in the scale (Passini, 2012).

The studies by Young et al. (2007) and Aquino et al. (2007) clearly operationalised moral disengagement using only some of Bandura's (1986) original mechanisms. It seemed that these researchers did not subscribe to the conceptualisation of moral disengagement as a generalised global construct. In the study about the role of moral disengagement as a predictor of illegal hacking activity, Young et al. (2007) defined moral disengagement in terms of two mechanisms, distortion of consequences and attribution of blame, which were represented in a three-item scale. Aquino et al. (2007) conducted two studies. In the first moral disengagement was captured in a 4-item scale that exclusively measured the moral justification mechanism proposed by Bandura (1986) to justify violent retaliation towards those responsible for the 11 September 2001 terrorist attack on the World Trade Centre. In the second study moral disengagement was measured with a 4-item scale which exclusively represented the advantageous comparison mechanism proposed by Bandura (1986) to rationalise the abuse of Iraqi prisoners of war. In each of these studies the moral disengagement construct was defined in terms of a solitary moral disengagement mechanism proposed by Bandura (1986) as part of his original eight. It seemed that these researchers envisaged that specific moral disengagement mechanisms were relevant for predicting specific types of behaviour in different contexts. Therefore, the findings that emerged from these

studies were technically not comparable with the findings about moral disengagement as a generalised, global construct. Therefore, the conclusions drawn about moral disengagement as a predictor for explaining a range of different behaviours across the studies reviewed could not always be meaningfully be compared with each other; thereby, limiting their generalisability for understanding the role of moral disengagement as a predictor of antisocial behaviour.

With the exception of one study (Boardley & Kavussanu, 2007) in this review, all the empirical studies that tested moral disengagement as a multi-dimensional construct found support for it as a uni-dimensional one (Caprara et al., 2009; Hymel et al., 2005; Moore et al., 2012). Therefore, despite Bandura's (1986) theoretical presentation of moral disengagement as a possible eight or four-factor construct, the empirical evidence showed the most overwhelming support for it as a uni-dimensional construct. A critical review of these empirical studies revealed that they sometimes arrived at the conclusion that moral disengagement was uni-dimensional after only subjecting their scales to exploratory factor analysis (Bandura et al., 1996a; 2001a; Hymel et al., 2005; Jackson & Sparr, 2005; Pelton et al., 2004), without verifying this factor structure using confirmatory factor analysis. This raised questions about the stability of the foundation on which the conclusions pertaining to moral disengagement's dimensionality were based. Although they certainly offered a useful jumping-off point for entertaining the conceptualisation of moral disengagement as uni-dimensional, these studies did not corroborate a unitary factor structure using confirmatory factor analysis and, consequently, omitted an important step in the scientific process for assessing dimensionality (Cramer, 2003). Caprara et al. (2009), Moore et al. (2012) and Boardley and Kavussanu (2007) tested the dimensionality of moral disengagement using confirmatory factor analysis. The first two sets of researchers found support for it as a single-factor variable while the third set of researchers concluded that there was no support for moral disengagement as a unitary construct and that it was, in fact, a six-factor variable. This new conceptualisation of moral disengagement was not supported in any other empirical research reviewed in this chapter but it was interesting and will be explored in more detail later.

The second insight that emerged from this critical review of the empirical research was that the scales included in these studies did not always consist of items that loaded onto all eight of Bandura's (1986) mechanisms of moral disengagement. When they were used to assess the dimensionality of the moral disengagement construct (Pelton et al., 2004) the results commented on the dimensionality of an incomplete scale which did not include all the constituent components of the variable as proposed by Bandura (1986). The inconsistencies in the mechanisms used to

characterise the moral disengagement construct in the empirical research (not all eight of Bandura's mechanisms were used in all cases), together with the inconsistencies in the multiple conceptualisations of moral disengagement in terms of its dimensionality both in the theoretical and empirical literature, had important implications for the generalisability of the construct which contributed systemically to challenges associated with the generalisability of social cognitive theory as a broader theoretical framework (which was explored in detail in Chapter 2). Thus, the results of some of the studies that examined uni-dimensional conceptualisations of moral disengagement (including the empirical software piracy research) required careful and critical treatment to facilitate the derivation of accurate conclusions from them.

4.2.4 Alternate conceptualisations of moral disengagement as a multi-dimensional construct

Bandura's (1986) theoretical conceptualisations of moral disengagement suggested that it was probably an eight or a four-factor construct. However, the empirical research did not support either of these conceptualisations. Instead, in the majority of studies, moral disengagement received empirical support as a uni-dimensional construct. A closer examination of some of the empirical research that examined the dimensionality of moral disengagement (Caprara et al., 2009; Hymel et al., 2005; Jackson & Sparr, 2005) revealed preliminary evidence for alternative multi-dimensional conceptualisations for the construct which did not coincide with Bandura's (1986) theoretical interpretations. Although Caprara et al. (2009) did not find support for the multi-dimensional eight and four-factor conceptualisations of moral disengagement they tested using exploratory factor analysis, they did report support for the extraction of three moral disengagement factors when they ran a parallel analysis. However, even after these were obliquely rotated the pattern of Promax rotated factor loadings was not interpretable for the three-factor solution and so it was abandoned. Unfortunately, Caprara et al. (2009) did not offer details of the three factors that emerged from this analysis or of the distribution of moral disengagement scale items across these factors. Even though there was no theoretical support for a three-dimensional conceptualisation of moral disengagement and even though these empirical findings were not interpretable they introduced the possibility that moral disengagement could be conceptualised as a multi-dimensional construct that did not conform to either of Bandura's (1986) possible theoretical interpretations.

A closer look at the findings by Jackson and Sparr (2005) and Hymel et al. (2005) more tangibly supported this possibility. Jackson and Sparr (2005) ran an exploratory factor analysis on their

eight-item moral disengagement scale and found support for a two-factor solution. All the items demonstrated high factor loadings on the first factor but three items representing the diffusion of responsibility, attribution of blame and dehumanisation mechanisms also demonstrated high cross-loadings on a second factor. These specific items all had one thing in common: they captured rationalisations in which actors externalised responsibility for their antisocial behaviour by projecting it onto external parties and institutions and onto the victims or recipients of their detrimental actions. The author would have expected the displacement of responsibility item to also have cross-loaded onto the second factor as it shared this property with the other three mechanisms of moral disengagement but this was not the case in the study by Jackson and Sparr (2005). However, the fact that three of the four mechanisms that shared this property did load onto a second factor in the solution suggested that moral disengagement could potentially be represented by two factors; one consisting of the mechanisms of moral disengagement that individuals used to project blame for their injurious conduct onto external parties (including victims of their antisocial actions), institutions and factors in the external environment (viz. displacement of responsibility, diffusion of responsibility, attribution of blame and dehumanisation), and the second consisting of the mechanisms of moral disengagement leveraged by individuals when they implicitly accepted responsibility for their detrimental conduct and attempted to cognitively reconstrue their behaviour and minimise or distort its consequences in order to render it more palatable to themselves by convincing themselves that it did not cause harm and that it was in the service of honourable ends (viz. moral justification, euphemistic labelling, advantageous comparison, distortion of consequences). The cross-loadings of these three items onto a second factor made for a messy solution and ultimately, Jackson and Sparr (2005) concluded that the single-factor solution was likely to best describe moral disengagement. Notwithstanding, this conclusion the cross-loadings certainly raised the question about a possible two-factor solution for moral disengagement which should ideally have been verified through confirmatory factor analysis before being discounted. However, Jackson and Sparr (2005) did not use confirmatory factor analysis in their study and opted not to pursue the possibility of a two-factor solution and discounted it instead, in favour of the uni-dimensional interpretation.

Hymel et al. (2005) conducted a principal components exploratory factor analysis using orthogonal Varimax rotation on the 18-item scale they devised for explaining bullying among adolescents. Their findings revealed that 13 of the 18 items loaded onto a single main factor but five items did not. Based on this finding these researchers discarded the five items that did not fit neatly into the single-factor solution and proceeded to compute a single composite measure of

moral disengagement based on the 13 items that did. The author reviewed the five items that did not load onto the main factor and discovered that one of them seemed to represent the displacement of responsibility mechanism, one seemed to depict the diffusion of responsibility mechanism and three appeared to represent the attribution of blame mechanism. These three moral disengagement mechanisms (together with dehumanisation) fell into the category of mechanisms used by individuals to project blame for their injurious conduct onto external parties (including victims of their antisocial actions), institutions and factors in the external environment. This finding was interesting because, once again, as in the case with Jackson and Sparr's (2005) factor solution, moral disengagement appeared to split into two factors: one that comprised mechanisms individuals used when they implicitly accepted blame for their injurious conduct and tried to cognitively reconstrue it or minimise its consequences in order to render their conduct more acceptable and the other which comprised of mechanisms individuals used when they projected blame for their detrimental behaviour onto external parties, institutions and factors in the external environment in their quest to distance themselves from responsibility for their egregious behaviour. Hymel et al. (2005) completely omitted the dehumanisation mechanism from their moral disengagement scale. The author would have expected the items that loaded onto it to also feature in the list of items that did not load onto the single main factor and perhaps, it would have been represented in this list if it had been considered in the scale. However, it was not clear whether the five items that did not load onto the first factor all loaded onto the same alternative factor and, if they did, it was not clear what their loadings on this factor were. It did seem an odd coincidence though that in two separate and independent studies that investigated the factor structure of moral disengagement, a possible two-factor interpretation of the construct emerged based on the clustering of Bandura's (1986) original eight mechanisms in terms of the locus of responsibility they implied for individuals enacting harmful behaviour. In neither of these studies, however, was the possible two-factor interpretation of moral disengagement confirmed.

Another unusual interpretation of moral disengagement emerged in the study by Boardley and Kavussanu (2007) when they tested it as an eight-dimensional variable but found no support for this interpretation but rather for a six-factor solution in which moral justification and euphemistic labelling were combined to form one factor and displacement and diffusion of responsibility were combined to form another factor. The other moral disengagement mechanisms (viz. advantageous comparison, distortion of consequences, attribution of blame and dehumanisation) existed as the other four factors in the solution. This was the only study in this review that found support for a

six-dimensional conceptualisation of moral disengagement. Unlike the two-factor conceptualisation of moral disengagement based on the locus of responsibility interpretation, the six-factor conceptualisation was verified and derived from confirmatory factor analysis but like the two-factor interpretation, the six-factor construal of moral disengagement had no firm theoretical basis (even though it came closer to Bandura's (1986) theoretical interpretation than the two-factor conceptualisation).

4.2.5 Research questions pertaining to the dimensionality of moral disengagement

Thus, there is no question that there is a distinct lack of clarity surrounding the dimensionality of the moral disengagement construct based on the duality of Bandura's theoretical conceptualisation and on discrepancies between Bandura's (1986) theoretical conceptualisations and findings in the empirical research. While Bandura (1986) pitched the construct as a multi-dimensional one which could either be operationalised as an eight or four-factor solution, the empirical research most consistently supported a uni-dimensional conceptualisation (Bandura et al., 1996a; 2001a; Hymel, Rocke-Henderson & Bonanno, 2005; Jackson & Sparr, 2005; Caprara et al., 2009). This trend of operationalising moral disengagement as a unitary construct was also noted in the empirical software piracy research leveraging social cognitive theory (Rogers, 2001; Wentzell, 2008; Garbharran & Thatcher, 2009; Garbharran & Thatcher, 2011; Jacobs et al., 2012). There was also preliminary evidence for the possibility that moral disengagement could have assumed an alternative factor structure that was not consistent with either the theoretical eight and four-factor interpretations or the empirical uni-dimensional interpretation. Jackson and Sparr (2005) and Hymel et al. (2005) found tentative support for moral disengagement as a two-factor construct. Each factor consisted of four of Bandura's (1986) eight moral disengagement mechanisms. A qualitative review of the eight mechanisms by the author revealed that half of them implied an external locus of responsibility for detrimental behaviour through which individuals justified their actions by projecting responsibility for them onto parties, institutions and factors external to themselves. Displacement and diffusion of responsibility from the agency locus or the point in the self-regulation process between behaviour and its consequences fell into this category. Also, attribution of blame and dehumanisation from the recipient locus or at the point of the victim in the self-regulation process fell into the category of mechanisms implying an external locus of responsibility. The other half of the mechanisms fell into a category in which responsibility for injurious conduct was implicitly assumed and individuals resorted to cognitively reconstruing their harmful behaviour to render it benign and to minimise the

detrimental consequences of their antisocial conduct in order to justify it and render it acceptable to themselves. Moral justification, euphemistic labelling and advantageous comparison existing at the behaviour locus or at the point of the behaviour in the self-regulation process and distortion of consequences existing at the outcome locus or at the point of the consequences of behaviour in the self-regulation process fell into this category. The two-factor structure for moral disengagement in these studies by Jackson and Sparr (2005) and Hymel et al. (2005) appeared to correspond to the author's qualitative classification of the moral disengagement mechanisms into two groups based on an internal versus an external locus of responsibility. The first set of research questions emerged from this lack of clarity.

Research question 1.1: *What is the most optimal factor structure for the moral disengagement construct?*

This study tested a series of conceptualisations of moral disengagement as a multi-faceted and unitary construct using confirmatory factor analysis to comment on which factor structure was most optimal for predicting software piracy behaviour as a specific instance of antisocial behaviour. While it was not feasible, for methodological reasons which will be elaborated on in the Methods chapter, to test moral disengagement as an eight-factor construct in this investigation, it was possible to assess its structure as a four-dimensional variable. This line of investigation was pursued in spite of the lack of empirical support for a four-factor conceptualisation of moral disengagement defined exactly as Bandura (1986) intended, to understand if moral disengagement could be meaningfully operationalised as a four-factor construct in the context of software piracy, as this had not been established in the empirical studies reviewed in this chapter. A graphic representation of the factor structure of moral disengagement as a four-dimensional construct, which will be tested in this study to comment on its dimensionality, is presented in Figure 4.1 below.

A test of moral disengagement as a two-dimensional construct based on the locus of responsibility interpretation was also conducted to ascertain if a more parsimonious multi-factor structure, other than the eight and four factor solutions, could meaningfully summarise the construct. This interpretation was hinted at in previous empirical research (Hymel et al., 2005; Jackson & Sparr, 2005) and will be examined in the context of confirmatory factor analysis in this investigation to comment on whether or not this factor structure was supported by the data.

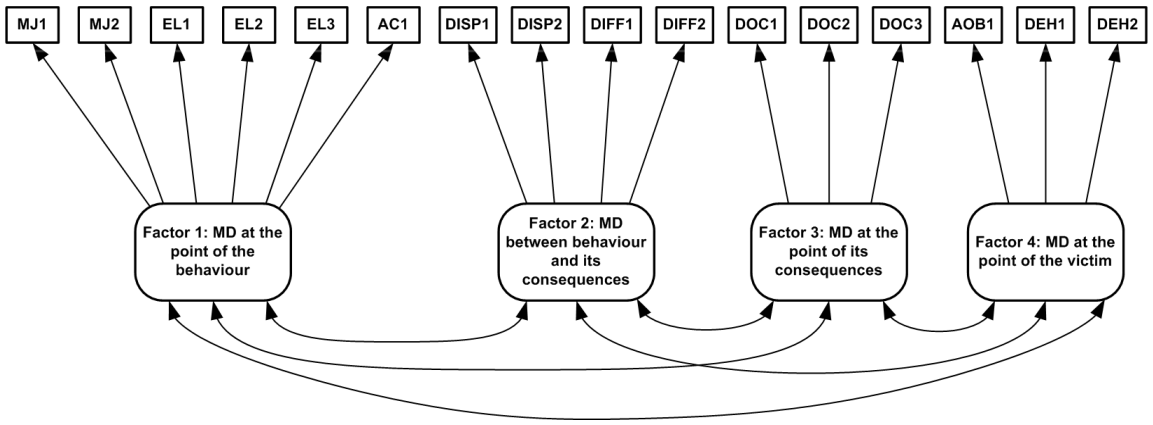


Figure 4.1: The factor structure of moral disengagement as a theoretical four-dimensional construct

An illustration of the factor structure of moral disengagement as a two-dimensional construct based on the locus of responsibility interpretation is presented in Figure 4.2 below.

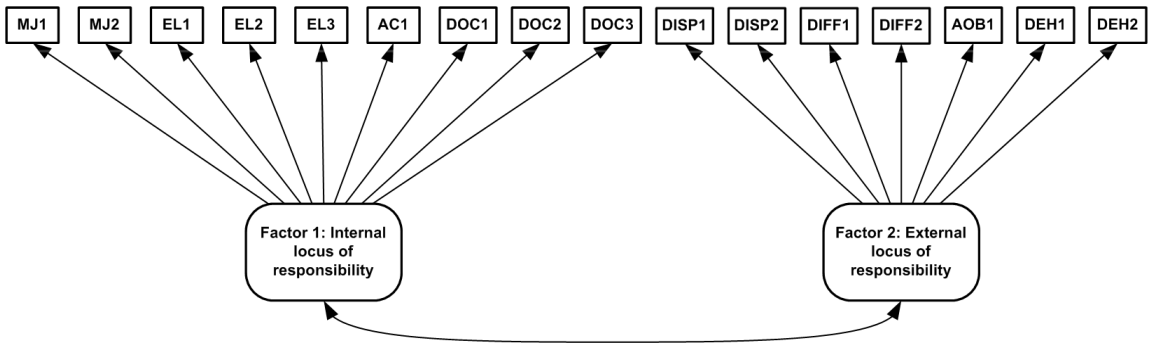


Figure 4.2: The factor structure of moral disengagement as a two-dimensional construct based on the locus of responsibility interpretation

Finally, moral disengagement was explored as a uni-dimensional variable in this study. The uni-dimensional interpretation this study set out to test was derived from previous empirical research (Bandura et al., 1996a; 2001b) and is graphically represented in Figure 4.3 below.

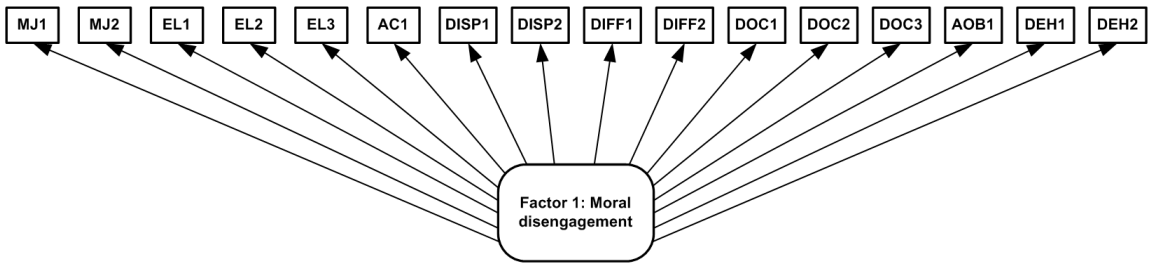


Figure 4.3: The factor structure of moral disengagement as a uni-dimensional construct

In addition to using confirmatory factor analysis to examine dimensionality, the author ensured that all eight of Bandura's original (1986) mechanisms were included in the scale used to test these alternative interpretations to meaningfully comment on the most optimal factor structure for moral disengagement as a generalised, global construct.

Research question 1.2: *Is the factor structure of moral disengagement invariant over time?*

In the literature reviewed only one study undertook to research the moral disengagement construct in the context of a longitudinal research design using reciprocal cross-lagged models which necessitated its repeated measurement over time (Caprara et al., 2009). The researchers did not explicitly report testing the moral disengagement construct for longitudinal measurement invariance to determine if its measurement over time was equivalent and stable. The author recognised this as a potential limitation in the study by Caprara et al. (2009) and undertook to establish whether the repeated measurement of the moral disengagement construct (the version of the construct with the most optimal factor structure served as the focus of this analysis) across the three to four month period in this longitudinal study was configurally and metrically invariant (i.e. whether it retained conceptual equivalence and whether the calibration of the moral disengagement items to the latent construct was equivalent across measurement occasions) (Vandenberg & Lance, 2000).

Brown (2006) noted that in applied longitudinal research measurement invariance is often implicitly assumed and is not empirically tested. He advised that researchers examine measurement invariance before proceeding to structural equation modelling applications with longitudinal data. The second aim of this study relied on an examination of reciprocal relationships and temporal sequences which could only be accomplished in the context of a longitudinal research design accommodating repeated measurements of constructs across time. Thus, as a first step, longitudinal measurement invariance tests were conducted to ascertain if the measurement of the constructs was stable and equivalent at both assessment points.

While moral disengagement was the focal variable in this study, other social cognitive variables were included in the analysis to facilitate temporal explorations of moral disengagement's position in a structural model of social cognitive theory in relation to other social cognitive constructs. However, not all the social cognitive variables identified as predictors of antisocial behaviour were included in this analysis. For the purpose of this study, in addition to moral

disengagement, self-efficacy, intention and behaviour were included which meant that outcome expectations and facilitators and impediments were omitted. The rationale behind this selection will be elaborated on later when discussing research question 2.1. These additional constructs were all conceptualised as uni-dimensional so it was not necessary to identify their most optimal factor structure but rather to establish their viability as single-factor variables. In addition, they too were measured repeatedly across measurement occasions to comment on reciprocal relationships and temporal sequences so it was also essential to assess them for longitudinal measurement invariance (configural and metric invariance).

4.3 On moral disengagement's interactions in social cognitive theory

The lack of integration between Bandura's (1986) constituent components of social cognitive theory was identified as a major gap in this theoretical framework (Prochaska, 2006). Beyond a handful of isolated references to causal sequences between self-efficacy and outcome expectations and self-efficacy and facilitators and impediments (discussed in Chapter 2), Bandura (1986) did not comment explicitly on how all the social cognitive variables theoretically interacted in the context of a cohesive framework to predict human behaviour. The notable absence of moral disengagement's likely interactions with other social cognitive predictors in Bandura's (1986) theoretical presentation raised important questions about its temporal precedence in relation to other social cognitive constructs in structural models aimed at predicting antisocial behaviour and about the directionality of its causal relationships with these variables. The second set of research questions emerged from the lack of clarity surrounding how the constituent components of social cognitive theory interacted with each other (with regard to the temporal sequences between them and the directionality of their interactions) to predict human behaviour. Since moral disengagement was the focal variable in this investigation, emphasis was given to its interactions with select social cognitive variables (viz. behaviour, intention and self-efficacy). In addition, the interactions between these select social cognitive variables with each other were also examined. The second set of research questions were the outcome of a review of empirical literature by Bandura and his colleagues and by researchers in the software piracy domain about the likely temporal sequences between moral disengagement and other social cognitive variables presented in the previous chapter. The conclusions yielded by this review will be briefly recapped here to give context to the research questions they informed (see section 3.4 in Chapter 3 for the detailed discussion).

4.3.1 Research questions pertaining to moral disengagement's interactions in social cognitive theory

Reciprocality in social cognitive theory implied that two-way reciprocal interactions between all pairs of variables were expected. However, of importance in this study, was understanding which variable in a pair produced the first causal impact in the predictive equation. In other words, it was important to ascertain the temporal sequence of the two interacting variables in the causal chain. Next, the author will explore moral disengagement's temporal position in relation to behaviour, intention and self-efficacy (in terms of which variable in each pair was likely to have produced the first causal impact in the context of software piracy as a specific instance of antisocial behaviour) and will examine the directionality of the relationships between these temporally sequential variables. This will be explored in the context of cross-lagged panel models which are graphically represented for each interacting pair of variables that were identified as relevant for commenting on causality and temporal sequence in the main longitudinal study.

Research question 2.1: *What position does moral disengagement occupy in a structural model of social cognitive theory?*

4.3.1.1 The interaction between moral disengagement and behaviour

Sykes and Matza (1957, p. 666) commented that the techniques of neutralisation through which individuals justified or rationalised delinquent behaviour "… are viewed as following deviant behaviour and as protecting the individual from self-blame and the blame of others after the act … but there is also reason to believe that they precede deviant behaviour and make deviant behaviour possible." However, Bandura (1986) offered no clear comment about whether the related notion of moral disengagement interacted with behaviour in the same way (i.e. he was not explicit about whether it preceded antisocial behaviour, followed it, or both). Bandura's (1986) notion of reciprocal determinism, however, allowed for the inference that a two-way reciprocal interaction between moral disengagement and behaviour could be expected. In other words, moral disengagement could theoretically be interpreted as both preceding and following behaviour in line with the principles and tenets of social cognitive theory. However, for the purpose of this study it was important to determine which variable in the moral disengagement-behaviour pair was likely to have produced the first causal impact in the predictive equation for understanding software piracy as a specific instance of antisocial behaviour. Figure 4.4 represents the cross-

lagged causal model that will be used to explore moral disengagement's likely temporal precedence in relation to behaviour; both past and future.

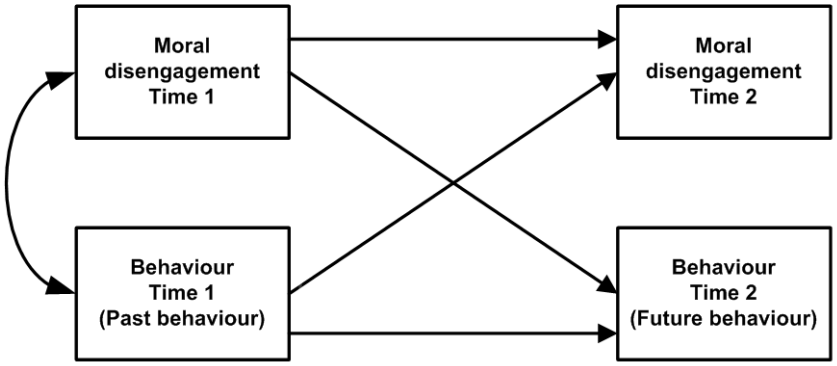


Figure 4.4: A cross-lagged panel model to explore causal relationships and temporal sequences between moral disengagement and behaviour

A review of the general empirical research by Bandura and his colleagues in Chapter 2 and the empirical software piracy research in Chapter 3 revealed a confusing and untenable temporal sequence between moral disengagement and past behaviour in some structural models tested in the context of cross-sectional research designs. In these models (Bandura et al., 1996a; LaRose & Kim, 2007; Jacobs et al., 2012) behaviour was positioned as an outcome of moral disengagement even though these constructs were measured concurrently. It was noted previously that when behaviour is measured concurrently with other variables in the context of a cross-sectional research design it is actually a measure of past behaviour. Therefore, it should technically temporally precede attitudes and perceptions about moral disengagement measured in the present. This confusing temporal sequence will not be perpetuated in this study. The author will always position past behaviour as temporally precedent to moral disengagement measured in the present and in the future and the only instance when moral disengagement will be considered as temporally precedent to behaviour will be when it is measured at Time 1 and the behaviour measure is obtained at Time 2. In this way, the author will examine whether the temporal sequence of moral disengagement being activated before future behaviour is more predictive in the context of software piracy as opposed to the temporal sequence when moral disengagement is activated after past behaviour has occurred.

4.3.1.2 The interaction between moral disengagement and intention

The inclusion of intention in the structural models of social cognitive theory discussed in this review was either in the form of the ultimate dependent variable in the context of cross-sectional research designs (Garbharran & Thatcher, 2009; 2011; LaRose & Kim, 2007; Wentzell, 2008) or as an immediate precursor to behaviour in the context of longitudinal studies (Bandura et al., 2001b). There were some studies that employed a cross-sectional research design and used past behaviour as the ultimate dependent variable. In these instances the intention variable tended to be excluded altogether to avoid the conceptual challenges associated with positioning intention as a forward-looking variable as temporally precedent to past behaviour which had already occurred (Jacobs et al., 2012; Rogers, 2001). However, in other cross-sectional research intention was included as a prelude to past behaviour (as the ultimate dependent variable) despite the conceptual challenges this created (Bandura et al., 1996a). The role of intention in models aimed at predicting human behaviour has always been theoretically fused with the notion of behaviour and intention has consistently been conceptualised as a prelude to behaviour (Fishbein & Ajzen, 1975; Ajzen, 1991; Triandis, 1977; Bandura, 1986). The empirical research has consistently upheld this temporal precedence between intention and behaviour even when there were conceptual problems surrounding its positioning as a prelude to past behaviour. The importance of understanding moral disengagement's temporal relationship with behaviour in this study coupled with behaviour's theoretical interconnection with intention hinted at the importance of understanding moral disengagement's temporal relationship with intention. This was examined in this study as another step towards understanding moral disengagement's likely position in social cognitive theory. Figure 4.5 represents the cross-lagged causal model that will be used to explain moral disengagement's likely temporal precedence in relation to intention.

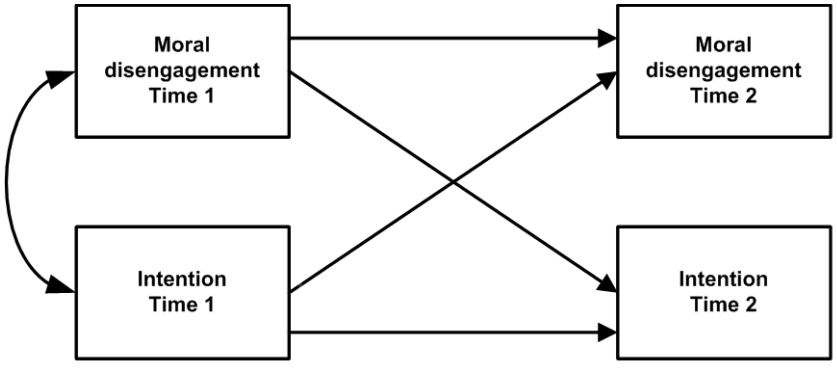


Figure 4.5: A cross-lagged panel model to explore causal relationships and temporal sequences between moral disengagement and intention

Moral disengagement was consistently treated as a prelude to intention in the empirical research reviewed and the direction of the relationship they shared was consistently positive. In this study, the author will test the temporal sequence between moral disengagement and intention to ascertain whether moral disengagement exerted the first causal impact on intention in the realm of predicting software piracy or whether the reciprocal relationship where intention exerted the initial causal influence on moral disengagement carried more explanatory potential for understanding software piracy behaviour. It was mentioned earlier that, in this study, the author interpreted moral disengagement's interaction with behaviour as inexorably intertwined with its relationship with intention in the light of intention's close theoretical relationship with behaviour. Thus, the author will also consider the likely temporal sequence between all three of these variables to understand moral disengagement's temporal position relative to both intention and behaviour. Did it precede both intention and behaviour as the empirical research seemed to suggest (Bandura et al., 2001b) or was there an alternative temporal sequence between these constructs which more effectively explained software piracy behaviour? The author will examine this question in the context of a longitudinal study in which the relationships between moral disengagement, intention and behaviour will be tested to comment on whether intention mediates the relationship between moral disengagement and software piracy behaviour.

4.3.1.3 The interaction between moral disengagement and self-efficacy

The review of the empirical research testing structural models of social cognitive theory did not offer a clear and consistent answer about the interaction between moral disengagement and self-efficacy and the temporal sequence between this pair of variables for predicting antisocial behaviour. Bandura et al. (1996a) tested a social cognitive model for predicting aggressive and delinquent behaviour which included moral disengagement but not self-efficacy. This raised the question of whether or not self-efficacy was relevant in antisocial contexts. In a later study Bandura et al. (2001b) included both moral disengagement and self-efficacy in a structural model for predicting transgressive behaviour. The self-efficacy variable was treated as multi-faceted and was operationalised as proficiency-based self-efficacy and self-regulatory efficacy. Another aspect of self-efficacy termed social efficacy was also included in the structural model but this will not receive further consideration here. Of specific interest were the relationships between proficiency-based self-efficacy and self-regulatory efficacy with moral disengagement. Bandura et al. (2001b) were clear in their study that self-efficacy did have a place in predicting antisocial behaviour alongside the moral disengagement construct and that these variables interacted with

each other in the predictive equation. Both proficiency-based self-efficacy and self-regulatory efficacy were pitched as temporally preceding moral disengagement and both these facets of the broader self-efficacy variable shared an inverse relationship with moral disengagement (Bandura et al., 2001b). This negative (inverse) relationship with moral disengagement was of interest (because it was unexpected) and will be explored in more detail below. Wentzell (2008) also conceptualised self-regulatory efficacy as preceding moral disengagement in a structural model designed to explain software piracy intention. But, this interaction was envisaged in the context of a cross-sectional research design and was, consequently, not possible to empirically confirm. However, not all the empirical studies considered in this literature review acknowledged the interaction between moral disengagement and self-efficacy (Garbharran & Thatcher, 2011; LaRose & Kim, 2007). In these cases, although moral disengagement and self-efficacy both existed in structural models for predicting software piracy intention, they were not envisaged to interact with each other at all.

Bandura et al. (2001b) proposed that regardless of whether self-efficacy was defined as self-regulatory efficacy or as proficiency-based self-efficacy, it temporally preceded moral disengagement and shared an inverse relationship with it. The author will explore the temporal precedence and directionality issues separately in the discussion that follows. It was noted in the previous chapter that the inverse relationship between self-regulatory efficacy and moral disengagement was understandable since if individuals were successful at refraining from antisocial behaviour (i.e. they possessed high self-regulatory efficacy) then they were unlikely to morally disengage (i.e. low moral disengagement). However, the inverse relationship between proficiency-based self-efficacy and moral disengagement was not as intuitive. In the study in which this inverse relationship was reported (Bandura et al., 2001b), transgressive behaviour was the ultimate dependent variable but proficiency-based self-efficacy related to perceptions of capability in the realm of academic achievement. The disjoint between the behavioural domain in which the ultimate dependent variable existed (i.e. transgressive behaviour in the antisocial domain) and the behavioural domain in which the proficiency-based self-efficacy beliefs existed (i.e. academic achievement in the prosocial domain) informed the inverse relationship between proficiency-based self-efficacy and moral disengagement. This finding suggested that when proficiency-based self-efficacy and the ultimate dependent variable tapped into the same behavioural domain, then proficiency-based self-efficacy was likely to share a positive relationship with moral disengagement. Thus, if Bandura et al. (2001b) had tapped into the proficiency to engage in transgressive behaviour instead of the proficiency for academic

achievement, it is likely that they would have observed a positive relationship between proficiency-based self-efficacy and moral disengagement instead of an inverse one.

On the issue of temporal precedence between moral disengagement and self-efficacy, it seemed reasonable that self-regulatory efficacy temporally preceded moral disengagement. Individuals first assessed their capability to resist making antisocial behavioural choices and if they felt they could not (i.e. low self-regulatory efficacy) then they activated the appropriate moral disengagement mechanisms to cognitively reconstrue their antisocial conduct as benign and in the service of beneficial personal and social ends. However, the author noted in the previous chapter that the temporal precedence between proficiency-based self-efficacy and moral disengagement was not as clear-cut. While Bandura et al. (2001b) positioned proficiency-based self-efficacy in the form of academic self-efficacy as preceding moral disengagement, it was unclear whether this sequence would still hold true if the proficiency measure assessed individuals' proficiencies to engage in transgressive behaviour. In other words, would individuals first free themselves from the self-constraints imposed by their own internal standards by morally disengaging and then evaluate their proficiency to engage in transgressive behaviour or would they first assess their perceived capability to execute transgressive behaviour before morally disengaging from their internal standards? The empirical research by Bandura and his colleagues in particular, and the empirical research aimed at explaining antisocial behaviour in the software piracy domain and in general, did not offer a clear answer to this question. Therefore, this study will investigate the temporal precedence between moral disengagement and proficiency-based self-efficacy to comment on whether moral disengagement exerts the first causal influence on proficiency-based self-efficacy in the realm of predicting software piracy behaviour or if proficiency-based self-efficacy exerts the first causal influence on moral disengagement. In either event, the direction of the relationship expected between these constructs is positive because the author intends to tap into proficiency-based self-efficacy beliefs that exist in the same behavioural domain as the ultimate outcome variable. A graphical depiction of this interaction is presented in Figure 4.6 below.

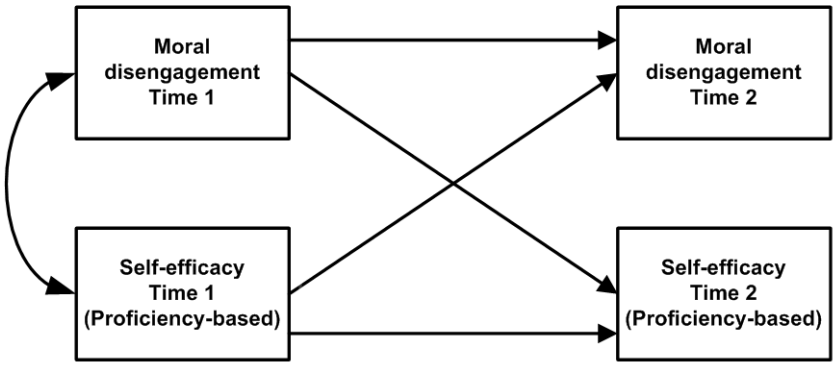


Figure 4.6: A cross-lagged panel model to explore causal relationships and temporal sequences between moral disengagement and proficiency-based self-efficacy

Research question 2.2: *What positions do the social cognitive constructs of self-efficacy, intention and behaviour occupy relative to each other in a structural model of social cognitive theory?*

The relationships between self-efficacy, intention and behaviour (which served as ancillary constructs in this investigation) relative to each other in social cognitive theory were also explored in this analysis. The previous empirical research on antisocial behaviour (delinquency and aggression) suggested that intention preceded behaviour, that self-efficacy preceded both intention and behaviour and that self-efficacy preceded moral disengagement. These relationships were researched in this study to understand the directionality and temporal sequences between these constructs when explaining software piracy behaviour as a specific instance of antisocial behaviour. Specifically, the interactions between self-efficacy and behaviour (see Figure 4.7), self-efficacy and intention (see Figure 4.8) and intention and behaviour (see Figure 4.9) were considered.

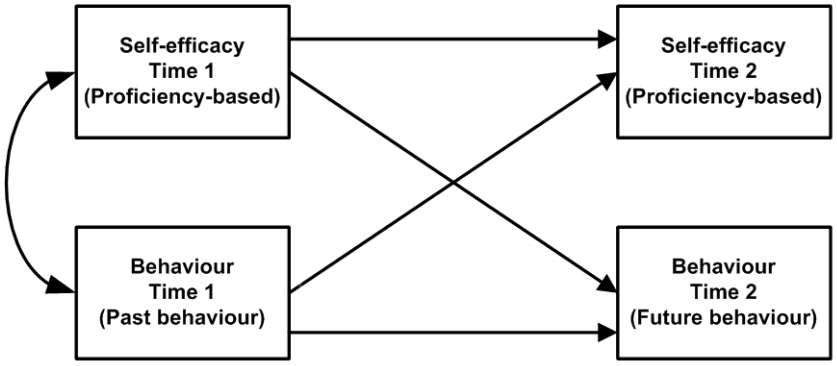


Figure 4.7: A cross-lagged panel model to explore causal relationships and temporal sequences between proficiency-based self-efficacy and behaviour

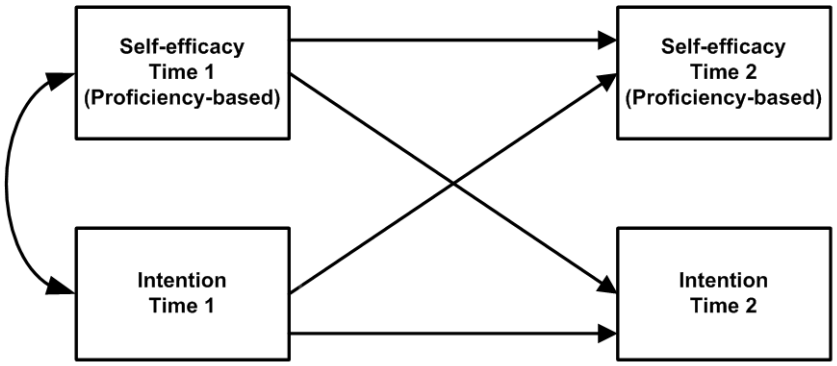


Figure 4.8: A cross-lagged panel model to explore causal relationships and temporal sequences between proficiency-based self-efficacy and intention

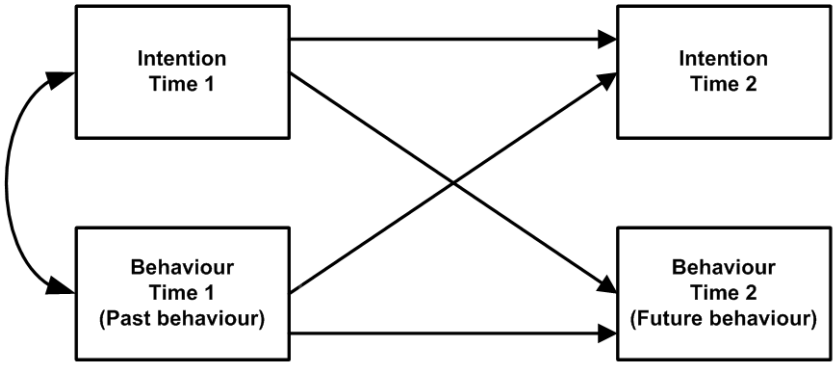


Figure 4.9: A cross-lagged panel model to explore causal relationships and temporal sequences between intention and behaviour

4.4 Methodological decisions to facilitate the investigation of moral disengagement's dimensionality and interactions in this study

The author had to make several methodological decisions pertaining to the design of this study to ensure that the results yielded were relevant and meaningful for answering the research questions outlined above. Throughout this literature review, the author pointed out problems in the methodology or design of studies which detracted from the validity of their results and from their generalisability. In this study the author actively endeavoured to avoid the major pitfalls. This discussion will outline these pitfalls and the measures that were taken to avoid them.

4.4.1 Using confirmatory factor analysis to yield meaningful conclusions about dimensionality

It was noted earlier that some researchers (Bandura et al., 1996a; 2001b; Jackson & Sparr, 2005; Hymel et al., 2005) reached conclusions about moral disengagement's dimensionality purely on the basis of exploratory factor analyses. Cramer (2003) proposed that exploratory factor analysis was useful for getting a sense about the underlying structure of a scale. However, in the author's opinion, due to its exploratory nature, it is not as rigorous a test of factor structure as confirmatory factor analysis. Anderson and Gerbing (1988) proposed that exploratory factor analysis should be the first step in an ordered progression that ought to be followed with confirmatory factor analysis. In the confirmatory factor analysis stage, the factor structure of a scale is verified statistically by testing the probability that a specific *a priori* factor structure is empirically supported or confirmed by the data (Cramer, 2003). In the author's opinion, it is on the basis of confirmatory factor analysis that more meaningful conclusions about dimensionality can be reached as a direct function of the greater scientific rigour that data are subjected to in order to confirm the factor structure that they best support. Thus, for the purpose of assessing the dimensionality of moral disengagement as the focal variable in this investigation and of the ancillary self-efficacy, intention and behaviour variables, confirmatory factor analysis was used to verify the underlying factor structure of these variables suggested by initial exploratory factor analyses. The final conclusions about factor structure, however, were made on the basis of the results of the confirmatory factor analyses.

4.4.2 Using a longitudinal research design to cater for the structural properties of reciprocality and temporality

In social cognitive theory, reciprocality implied bi-directionality of influence and the two-way interactions between variables, in turn, implied that they were both caused by and were determinants of each other. The notion of causality suggested a temporal spacing between causes and effects in reciprocal interactions (Bandura, 1986). Thus, Bandura (1986) catered for the notions of reciprocality and temporality in his theoretical presentation of social cognitive theory which informed how he envisaged the theory was structured and how it operated in terms of its internal mechanics. A longitudinal research design is paramount for accommodating the properties of reciprocality and temporality in structural models of social cognitive theory. This

will be elaborated on below. Specifically, the ways in which the author leveraged the longitudinal research design to answer the research questions outlined above will be presented.

4.4.2.1 Examining bi-directional relationships

It was noted in Chapter 2 that Bandura (1986) did not insist on the exclusive use of analytic strategies that examined reciprocal effects to understand the interactions between social cognitive constructs. This suggested that he recognised the importance of understanding how social cognitive determinants interacted with each other to produce change in the first place without also needing to understand the impact of the resulting reciprocal effects of these initial interactions. Thus, Bandura (1986) did not dictate that in order to empirically research social cognitive theory, researchers could only use longitudinal research designs which catered for bi-directional relationships. In fact, he also saw the opportunity to empirically research social cognitive theory in the context of cross-sectional research designs and uni-directional causal relationships. Thus, the ultimate decision about whether to use a cross-sectional research design that catered solely for uni-directional relationships or a longitudinal research design that catered either for uni-directional causal influences (between variables measured at different points in time) or bi-directional reciprocal relationships (in which initial causes and their reciprocal effects were separated by a time-lag) was dependent on the objectives that specific research initiatives were designed to achieve.

One of the goals in this study was to understand the interactions between moral disengagement and the other social cognitive constructs in question (viz. behaviour, intention and self-efficacy) in order to gain insight into moral disengagement's position relative to these constructs in a structural model of social cognitive theory. In other words, one of the aims of this study was to understand the temporal sequences between moral disengagement and the other social cognitive constructs in order to comment on whether moral disengagement exerted the first causal influence on behaviour, intention and self-efficacy or if behaviour, intention and self-efficacy exerted the first causal influence on moral disengagement. The author used cross-lagged panel models to investigate the bi-directional relationships between moral disengagement and the other social cognitive variables to answer this question. Moral disengagement was paired up with each of the other variables individually to understand which construct in each pair exerted the greater impact on the other, and to understand the dominant direction of influence between each pair of variables in order to comment on likely causal sequences and temporal precedence (McCullough, 1978).

This exploration necessitated a longitudinal research design which catered for a time-delay between the measurement of initial causes and their subsequent reciprocal effects. Therefore, in this study, the author undertook to examine the interactions between the social cognitive constructs in the context of a longitudinal study.

Interestingly, in the empirical research, the author encountered an unusual study in which social cognitive theory's reciprocal effects were overtly acknowledged and incorporated into a cross-sectional research design. This study examined the effect of hope, superstitious belief and environmental factors on gambling behaviour exhibited by a group of lottery gamblers in Thailand (Ariyabuddhiphongs & Chanchalermporn, 2006). Separate models exploring the effects of hope, superstitious belief and environmental factors on gambling behaviour (Model 1) and the effects of gambling behaviour on hope, superstitious belief and environmental factors (Model 2) were empirically tested to establish the presence of reciprocal influences as proposed by Bandura (1986). The researchers concluded that their findings offered support for the reciprocal influence hypothesis (Ariyabuddhiphongs & Chanchalermporn, 2006). While the explicit acknowledgement of reciprocal influences among the constructs in their structural models of social cognitive theory was admirable and held true to the original tenets proposed by Bandura (1986) there were significant problems with the execution of this study and with the soundness of its conclusions which bear mention. The cross-sectional research design implied that data were collected at one point in time which rendered it misleading to define gambling behaviour as the outcome variable. The concurrent measurement of all the variables in this study meant that the gambling behaviour variable was actually tapping into past behaviour and not future behaviour. This implied that the variable the researchers were attempting to predict had already occurred in the past so, in principle, there was no practical or scientific benefit to leveraging it as an outcome variable. Further, the personal and environmental factors measured in the study were technically influenced by past behaviour which had already been enacted so it would have been possible to assess the influence of past gambling behaviour on hope and superstitious belief in the present. However, in order to examine the reciprocal influence of hope and superstitious belief on future behaviour, it would have been necessary to measure gambling behaviour at another point in the future (i.e. to employ a longitudinal research design). Thus, the examination of reciprocal influences was not theoretically or practically possible given the cross-sectional research design. So, the claim that the study tested reciprocal effects in structural models of social cognitive theory was misleading. At best, the researchers would have been able to explore the impact of past behaviour on current perceptions and appraisals of personal and environmental factors but in the

absence of a longitudinal research design, they would have been unable to comment on the impact of current appraisals of personal and environmental influences on future behaviour. This study (Ariyabuddhiphongs & Chanchalermporn, 2006) illustrated that bi-directional relationships between variables could only meaningfully be examined in the context of a longitudinal research design since initial causal sequences and their reciprocal interactions did not emerge simultaneously and instantaneously (i.e. in the context of cross-sectional research designs in which all variables are assessed concurrently) but rather played out over time (i.e. in the context of longitudinal research designs in which initial causal sequences and their reciprocal effects are separated by a time-lag) (Bandura, 1986). In so doing, it reiterated support for the use of a longitudinal research design which catered for a time-delay between causes and effects to examine the bi-directional interactions between moral disengagement and other social cognitive constructs in order to comment on the likely temporal sequences between them in this study.

4.4.2.2 Determining a meaningful time-lapse

Although Bandura (1986) acknowledged that causes and their effects did not emerge simultaneously and instantaneously but rather unravelled over time, he did not comment on what time periods were necessary for causes and their effects to unfold or on how to determine an optimal time lapse for investigating the temporal sequence of phenomena. At best he offered the general comment that "time lags between causal events will vary for different activities" (Bandura, 1986; p. 25). The optimal way to incorporate time into empirical tests of structural models of social cognitive theory was, therefore, open to interpretation and in the absence of a clear set of criteria guiding its inclusion, Bandura's (1986) theory ran the risk of being rendered untestable. Thus, while it was clear that time played a role in the temporal sequencing of social cognitive variables which had important implications for the research design strategies used to empirically investigate social cognitive theory, it was not clear how much time should be allowed to lapse in the investigation of different phenomena casting doubts over how the variable of time should be purposefully incorporated into research design strategies to facilitate the meaningful exploration of the full range of human behaviour.

For guidance on an optimal and reasonable time lapse between data collection points, empirical longitudinal research (Caprara et al., 2002; Bandura et al., 2001b; Compeau et al., 1999; Limayem et al., 2004) was consulted. Two categories of studies emerged. Studies in the first category were developmental in nature and tested the relationships between social cognitive

variables such as self-efficacy and moral disengagement on transgressive behaviour as individuals transitioned through specific developmental phases (Caprara et al., 2002; Bandura et al., 2001b). These studies catered for two year time-lags between the data collection points which seemed to be logically determined as they allowed children to transition into adolescence (Bandura et al., 2001b) and adolescents to transition into adulthood (Caprara et al., 2002). The second category of studies investigated phenomena for which there were no obvious logical criteria to base the determination of appropriate and reasonable time-lags on. Compeau et al. (1999) developed a model for understanding the effect of computer self-efficacy, outcome expectations, affect and anxiety on computer usage. In their study one year was allowed to pass between the first and second data collection points and different surveys were used at Time 1 (self-efficacy, performance outcome expectations and personal outcome expectations were measured) and Time 2 (affect, anxiety and usage were measured). No rationale was provided for the time lag. In their longitudinal study on the factors influencing software piracy intentions and behaviour, Limayem et al. (2004) allowed three months to lapse between the first and second iterations of data collection. In this study, like in the previous one, the rationale behind the time lapse was not elaborated on. Once again different questionnaires were administered at Time 1 and Time 2. In the first round of data collection, piracy intentions, habits, facilitating conditions, attitudes and perceived consequences were measured (Limayem et al., 2004). The second questionnaire measured actual software piracy behaviour three months later. Since the same questionnaires were not administered at Time 1 and Time 2 in both these studies, it was not possible to examine the reciprocal influences of components of the models on each other across time (although the exploration of causal influences was possible). Much of the value that could have been derived from employing a longitudinal design could, therefore, have been lost. The findings suggested that overall the proposed models were viable which implied that the 12 month time lag in the first case (Compeau et al., 1999) and the three month time lag in the second (Limayem et al., 2004) could have allowed the causal sequences that typically unfold over time to unravel and exert their influence. Thus, for phenomena that were not developmentally-based, appropriate and reasonable time-lags were probably best determined by the in-depth knowledge of the researchers about the phenomena they were researching and by practical considerations surrounding the implementation of the studies to ensure their feasibility.

Given the practical realities in this study, which required the same group of at least 200 respondents to complete the questionnaire at two points in time, a three month time-lag was opted for between measurement occasions. The author believed that a three-month lag was likely to

yield a higher response rate since more people from the original sample were likely to still be contactable after three months than after twelve months to request their participation in the second assessment wave and it was possible that more respondents from the original sample would remember the study after three months and remain committed to participating in it than if the author waited twelve months to conduct the second phase. In practical terms, the three month time-lag stretched in some instances to a four-month time-lag due to delays in questionnaire completion by respondents despite receiving the second invitation and reminders about deadlines.

4.4.3 Other methodological considerations

In Chapter 3 the author introduced two additional methodological considerations pertaining to the use of pilot studies to validate newly developed research instruments for measuring social cognitive constructs and the use of student samples. The author believes that it is vital to conduct pilot tests on newly developed measures of constructs to ensure their validity and reliability before using them as the basis for arriving at conclusions about the nature of human behaviour. If new assessment measures are not trialled in the context of pre-test investigations then the accuracy of the conclusions derived from their use and their credibility as valid measures of relevant constructs are called into question. Therefore, the author will undertake a pilot investigation to validate the new measures developed for assessing the social cognitive constructs used to predict software piracy behaviour in this study and will use the insights yielded by this analysis to improve the utility of these measures before using them to answer the research questions in the main longitudinal study. The heavy reliance on student samples in the empirical software piracy research has been cited as a major limitation in terms of the generalisability of the findings from these studies to the general population. The problem of using homogenous, convenience student samples did not seem to taint the empirical research that leveraged social cognitive theory for understanding software piracy to the same extent as it impacted the empirical research that leveraged the theories of reasoned action, planned behaviour and interpersonal behaviour. In this study, the author will continue the trend to avoid the use of student samples to understand software piracy as a specific instance of antisocial behaviour that could be explained using social cognitive theory and will attempt to maximise the generalisability of the sample by using a heterogeneous group of individuals from a range of occupational categories and industry sectors.

4.5 Conclusion

The research questions that this study was designed to explore emanated from theoretical gaps in Bandura's (1986) conceptualisation of social cognitive theory. The first gap pertained to the lack of clarity about what constituted the building blocks of social cognitive theory which led the author down the path of identifying the moral disengagement construct as a key theoretical predictor that differentiated social cognitive models for explaining prosocial behaviour from those geared towards understanding antisocial behaviour. The uniqueness of the moral disengagement construct in social cognitive theory led to its centrality in this investigation. A closer look at the moral disengagement construct revealed a lack of clarity surrounding its dimensionality or factor structure and the first set of research questions was designed to examine this issue. The second gap in social cognitive theory was born from Bandura's (1986) lack of clarity about how the constituent components interacted with each other in the form of a cohesive model for predicting human behaviour (Prochaska, 2006). The second set of research questions was designed to understand moral disengagement's temporal position relative to behaviour, intention and proficiency-based self-efficacy in the context of a structural model for explaining software piracy as a specific instance of antisocial behaviour. In addition, it was oriented towards understanding the relative temporal positions of behaviour, intention and proficiency-based self-efficacy relative to each other. This was important for understanding the temporal positions of these four constituent components of social cognitive theory relative to each other. Although the full complement of building blocks was not investigated in this study, understanding the temporal positions of these four variables in relation to each other offered a useful starting point for piecing together the likely interactions between the constituent components to understand how they were likely to cohere in a generic structural model of social cognitive theory for predicting human behaviour.

In an effort to accomplish these aims the author made the following methodological decisions. First, confirmatory factor analysis was used as the main data analytic tool from which to derive conclusions about moral disengagement's dimensionality to avoid the pitfalls associated with basing these decisions on exploratory factor analysis only. Second, a longitudinal research design was used to investigate bi-directional relationships to establish temporal precedence and likely causal sequences. The use of a longitudinal research design implied that a time-lag was required between data collection points to cater for assessing the interactions between initial causal sequences and their subsequent reciprocal effects which Bandura (1986) noted did not emerge

simultaneously and instantaneously but rather unravelled over time. However, there was no clarity about what constituted an optimal time-lag so the author considered the time-lapse that was likely to be most meaningful for understanding reciprocal relationships in the context of software piracy behaviour. In the absence of obvious logical criteria to base the determination of appropriate and reasonable time-lags on (as was possible in research that considered developmentally-based phenomena such as childhood and adult development), the author took guidance from an empirical study that catered for a three-month time-lag between data collection points to facilitate the investigation of software piracy behaviour (Limayem et al., 2004) and opted to use a three-month time-delay between data collection points in this study (which practically translated into a four-month time-lag in some cases due to delays on the part of respondents in completing and returning the questionnaire by the stipulated end dates). Third, the author ran a pilot study to assess the reliability and validity of the newly developed assessment instruments and used the results of this analysis to tweak the final questionnaire in an effort to improve its efficacy and utility in the main longitudinal analysis as the basis from which to derive meaningful conclusions about moral disengagement's dimensionality and interactions. Fourth and finally, the author undertook to use a heterogeneous sample of individuals from a range of industry sectors for both the pilot and main investigations to maximise the possibility that the findings yielded by this study would be generalisable to a wider segment of the population to avoid the pitfalls associated with the use of homogenous student samples. In the next chapter the author will outline the methodology used to conduct both the pilot and main longitudinal phases of this research project.

CHAPTER 5: METHODS

5.1 Introduction

This research project was executed in two parts. The pilot study was the starting point and its primary purpose was to construct and evaluate the efficacy of scales for the social cognitive variables of interest (viz. moral disengagement, self-efficacy, intention and behaviour) to ensure their robustness and suitability for use in the main investigation. Moral disengagement was consistently the focal variable in this project with self-efficacy, intention and behaviour featuring as ancillary variables. The main study was contingent on the findings of the pilot investigation for its reliability, validity and integrity and constituted the second part of this project. The main study itself was comprised of two assessment waves and its primary purpose was to explore the dimensionality of moral disengagement to identify the most optimal structure for this construct and to analyse its temporal position in a structural model of social cognitive theory for explaining antisocial behaviour in relation to self-efficacy, intention and behaviour. Its secondary aims were to also explore the dimensionality and temporal positions of self-efficacy, intention and behaviour in a structural model of social cognitive theory for explaining antisocial behaviour. This chapter outlines the research methodology followed to conduct the pilot and main investigations. The research design, samples of respondents, details of the procedures followed, measures used, and how the data were analysed for both the pilot and main studies are discussed.

5.2 Research design

The pilot study was cross-sectional, exploratory, and quantitative. Data were collected at a single point in time and no causal relationships were explored. The main study was longitudinal, quasi-experimental, exploratory and quantitative. Identical data were collected at two points in time separated by a three to four month time-lag and causal relationships were tested to analyse temporal precedence. Both the pilot and main studies employed a survey-based research design which elicited perceptions and behaviours pertaining to the unauthorised copying of software through online self-report questionnaires. Survey-based research, in general, is well suited to tapping into individuals' attitudes and opinions (Shaughnessy & Zechmeister, 1997) and the questionnaire, in particular is a versatile and powerful research tool for eliciting information about attitudes, behaviour, beliefs and experiences in the psychological domain (Dyer, 1995). The

electronic dissemination of the questionnaires yielded significant time and cost savings (Cook, Heath & Thompson, 2000; Kaplowitz, Hadlock & Levine, 2004) with emails containing links to the web-deployed surveys dispatched to thousands of prospective respondents almost instantaneously.

5.3 Samples and sampling strategies

Technology users constituted the population of interest. It would have been impossible to tap into every element in this population for the purpose of the pilot and main studies so suitable contained samples were sought. The researcher approached a large organisation in the information and communications technology sector with a request to access a database of consumers of technology-oriented products and services who had registered for online services and who had agreed to receive email communications from the service-provider. These specifications offered the following benefits. First, all consumers in the database had indicated an interest in technology-oriented products and services. Second, they were all proficient with the use of the Internet and voluntarily registered for online services. Third, all consumers provided email addresses at which they could be contacted. Fourth, all consumers in the database had given their consent to be contacted by the service-provider via email. This database comprised 8940 prospective participants who constituted the sampling frame. The sampling technique employed in this study was non-probabilistic convenience sampling which was dependent on the convenient availability of respondents who technically selected themselves (voluntarily) as participants into the study (Dooley, 1995). Non-probability sampling is well-suited to exploratory and pilot research (Garson, 2009) because such studies can generally tolerate leniency in the selection of prospective respondents in the interests of facilitating scientific exploration. Thus, the inclusion of a pilot study in this project and its exploratory nature rendered non-probability sampling an appropriate approach to obtain research samples for the pilot and main investigations. In addition, this sampling strategy was chosen for practical purposes since it offered ready access to a large group of individuals from diverse backgrounds with email accounts to whom the questionnaires could be distributed with invitations to participate in the study.

Emails were sent to an initial group of 1456 randomly selected respondents from the database inviting them to participate in an online pilot survey for the purpose of validating and fine-tuning a measure of the psychological mechanisms used to rationalise software piracy for use in a subsequent longitudinal study. Of the 120 respondents who completed the questionnaire, 107

provided usable responses. In this study unusable questionnaires were defined as those with five or more omitted responses from the set of questions tapping into perceptions regarding software piracy (i.e. moral disengagement and self-efficacy) and at least one omitted response from the intention and behaviour scales. A 7% response rate was achieved in the pilot investigation. For the main investigation emails were sent to the remaining 7484 prospective respondents in the database inviting them to participate in a longitudinal study consisting of two assessment waves separated by a three month time-lag in which the psychological mechanisms used to rationalise unauthorised copying of software would be explored. In the first assessment wave, of the 574 respondents who completed the questionnaire, 456 provided usable responses (as defined above) resulting in a 6% response rate. In the second assessment wave 212 of the original 456 participants completed the second identical questionnaire. Of these, 201 responses were usable yielding a 44% response rate (of the respondents who completed the questionnaire at Time 1) for the main study at Time 2.

Table 5.1 contains biographical data for the samples (Pilot study: N = 107; Main study: N = 201). Gender composition was disproportionate with males comprising 80% of the sample in the pilot study and 78% in the main investigation. The median age range of respondents in the pilot sample was 50 to 59 years while in the main study it was 30 to 39 years. Secondary education was reported as the highest level of education attained by 17% of the sample in the pilot study compared to 13% in the main study; 35% of respondents in the pilot investigation reported post-school certification or diplomas compared to 37% in the main study; and 45% of respondents in the pilot study reported university qualifications (either first degree or postgraduate degree) as their highest level of education compared to 49% in the main investigation. The majority of participants in the pilot and main studies were in full-time employment (Pilot study: 92%; Main study: 66%) and cited information technology as their field of expertise (Pilot study: 42%; Main study: 38%); and while the majority of participants in the pilot study operated in the telecommunications industry sector (48%), the majority of participants in the main study functioned in the information technology (18%) industry sector.

This study focused on a specific instance of antisocial behaviour (i.e. software piracy behaviour) in relation to which the social cognitive mechanism of moral disengagement was likely to be activated. Empirical evidence has shown that computer use and specifically the frequency of computer use, was positively related to software piracy intention and behaviour as a result of enhanced experience and familiarity with computers (Sims et al., 1996; Hinduja, 2007). The more

Table 5.1: Biographical data for respondents in the pilot and main studies

		Pilot study	N = 107	Main study	N = 201
Variable		Frequency (n)	Percent (%)	Frequency (n)	Percent (%)
Gender	Female	21	20	45	22
	Male	84	80	156	78
	Missing data	2	-	-	-
Age	< 30 years	10	9	12	6
	30-39 years	33	31	48	24
	40-49 years	31	29	54	27
	50-59 years	30	28	53	26
	60+ years	3	3	34	17
	Missing data	-	-	-	-
Education	< Grade 12	3	3	1	1
	Grade 12	18	17	27	13
	Post-matric certificate	10	9	28	14
	Diploma	28	26	46	23
	Undergraduate degree	21	20	34	17
	Postgraduate degree	26	25	65	32
	Missing data	1	-	-	-
Employment status	Student	-	-	1	1
	Full-time employment	98	92	132	66
	Part-time employment	1	<1	7	3
	Self-employed	6	6	41	20
	Retired	1	<1	18	9
	Unemployed	-	-	2	1
	Missing data	1	-	-	-
Field of expertise	IT	43	42	77	38
	Research	4	4	8	4
	Human resources	4	4	8	4
	Legal	2	2	4	2
	Sales	2	2	10	5
	Marketing	1	<1	5	2
	Finance	12	12	30	15
	Technical	27	26	39	19
	Administration	7	7	20	10
	Other	1	<1	-	-
	Missing data	4	-	-	-
Industry sector	Aerospace & defense	2	2	1	1
	Agriculture	-	-	2	1
	Automotive	-	-	2	1
	Education & research	3	3	13	7
	Engineering & construction	1	<1	15	8
	Environmental affairs & conservation	-	-	4	2
	Financial services	22	21	30	15
	Healthcare	2	2	11	5
	Information technology	8	8	37	18
	Life sciences	-	-	1	1
	Manufacturing	5	5	13	7
	Media & entertainment	1	<1	6	3
	Mining	1	<1	10	5
	Petrochemicals	2	2	5	2
	Professional services	3	3	20	10
	Public sector	2	2	6	3
	Retail	1	<1	7	3
	Telecommunication	49	48	9	4
	Travel & transport	-	-	5	2
	Utilities	1	<1	3	1
	Other	-	-	1	1
	Missing data	4	-	-	-

often individuals interacted with computers the more proficient they were likely to become at wielding their technical capabilities and, consequently, the more likely they were to report increased software piracy intention or behaviour. For this reason, the researcher drew on a population of technology users who had access to the Internet and opportunity (by virtue of their use of technology) to make a choice about whether or not to engage in software piracy behaviour. Interestingly, 97% of individuals in the sample for the pilot study reported accessing the Internet every day while 96% reported using desktop applications such as word processing and spreadsheet software packages daily (see Table 5.2), speaking to the high frequency of computer use by the majority of individuals in the sample. Patterns of technology usage of respondents in the pilot and main studies are reported in Table 5.2.

The low response rates in the pilot and main investigations may have been attributable to a range of factors. First, the questionnaires were disseminated via email and empirical research has shown that response rates for email surveys are typically lower than those for surveys distributed via regular mail (Cook et al., 2000) due to the deletion of emailed invitations by virtue of sheer information overload, annoyance at receiving emails perceived as unsolicited and threats of computer viruses from accessing unverified hyperlinks. Second, the sensitivity of information pertaining to software piracy attitudes and behaviours could explain the reluctance of prospective participants to complete the questionnaire as they may not have wanted to expose their level of participation in software piracy-related activities. Third, the salience of software piracy as a topic of interest may not have appealed to the sample of prospective respondents. The low response rate obtained in this study suggested that topic salience may not have been a strong motivator for participation in the survey among the consumers in the telecommunications organisation's database (Sheehan, 2001; Baruch & Holtom, 2008). Fourth and finally, due to the lack of information about how many of the emails in the mass distribution bounced and how many emails were actually delivered to the intended recipients, the true response rate may have been underestimated.

It is possible that the samples in this study were skewed due to self-selection bias since all prospective participants had control over whether or not they completed the questionnaires and only those who felt more comfortable reporting on their involvement in the illegal activity of software piracy or those individuals who believed that disclosing their stance on software piracy would not result in negative consequences were more likely to have participated.

Table 5.2: Technology usage patterns of respondents in the pilot and main studies

		Pilot study	N = 107	Main study	N = 201
Frequency of use		Frequency (n)	Percent (%)	Frequency (n)	Percent (%)
Years working with computers for scholarly, academic, employment, recreational or other purposes	< 1 year	-	-	-	-
	1-5 years	-	-	-	-
	6-10 years	11	10	6	3
	11-15 years	21	19	31	15
	16-20 years	33	31	34	17
	>20 years	42	39	130	65
Hours a day spent working on a computer	1-5 hours	8	7	45	22
	6-10 hours	72	67	117	58
	11-15 hours	23	22	28	14
	16-20 hours	4	4	9	5
	>20 hours	-	-	2	1
Software programming packages e.g. C++, Java	Never	53	50	121	61
	Daily	28	27	34	17
	Weekly	4	4	16	8
	Monthly	8	8	16	8
	Other	12	11	14	7
Desktop applications e.g. word processors, spreadsheets	Never	1	<1	-	-
	Daily	102	96	186	93
	Weekly	3	3	10	5
	Monthly	-	-	3	1
	Other	-	-	2	1
	Missing data	1	-	-	-
Specialist software e.g. statistical accounting, architectural drawing packages	Never	36	34	58	29
	Daily	33	31	65	32
	Weekly	10	10	29	15
	Monthly	12	11	27	13
	Other	14	13	22	11
	Missing data	2	-	-	-
Gaming software e.g. Warcraft, Civilization	Never	67	64	114	57
	Daily	7	7	15	7
	Weekly	8	8	19	10
	Monthly	13	13	28	14
	Other	9	9	25	12
	Missing data	3	-	-	-
The Internet	Never	-	-	1	<1
	Daily	103	97	198	99
	Weekly	3	3	1	<1
	Monthly	-	-	1	<1
	Other	-	-	-	-
	Missing data	1	-	-	-

Thus, participants' decisions to complete the survey may have been correlated with a set of extraneous traits that could have impacted this study potentially rendering the samples less representative of the broader population.

As with research in many other areas of human behaviour university students have been over-utilised as an accessible group of willing participants in the domain of software piracy research. Consequently, as with the criticisms levelled against other research that relied extensively on student subjects, the insights derived from empirical software piracy research should be regarded with caution since students may differ in fundamental ways from other types of individuals who are likely to pirate software rendering the findings obtained from student populations of questionable generalisability (Rosenthal & Rosnow, 2008). This study moved away from using

student participants and tapped into consumers of technology-oriented products who operated in various fields of expertise and who were affiliated with organisations from a range of industry sectors.

5.4 Procedures

The researcher approached the managerial tier of a large telecommunications organisation to obtain access to a database of their clients to whom invitations to participate in the research project could be emailed with a link to the online surveys (see Appendix 1 for the letter sent to the organisation requesting access to a database of their customers to serve as the sample for this research project). The researcher divided this database into two segments: one to whom invitations to the pilot study would be sent and the other to whom invitations to the main study would be sent. A minimum sample size of 100 was the target set for the pilot investigation to facilitate meaningful conclusions from the statistical analyses the researcher intended to perform to explore the psychometric properties of the scales. Due to the potential sensitivity associated with admitting to software piracy intentions and behaviour (Woolley & Eining, 2006) a low response rate was anticipated and since there was no known precedent to suggest what this response rate could potentially be, the researcher made an educated guess and randomly selected 1456 individuals (16% of individuals) from the database for the pilot investigation with the expectation that at least 100 individuals would provide usable data. The remaining 7484 individuals in the database constituted the sample for the main investigation. A minimum sample size of 200 was the target for the main study to meet the minimum sample size requirement for the use of structural equation modelling as the principal statistical technique (Kline, 2011). The researcher once again anticipated a low response rate and hoped to obtain at least 400 participants during the first assessment wave and, anticipating a 50% attrition rate, hoped that at least 200 of these respondents would complete an identical questionnaire in the second assessment wave after a three month time-lag.

The questionnaires for the pilot and main studies were deployed using an online survey and questionnaire tool known as SurveyMonkey. This offered a secure database in which to store completed questionnaire responses. Participants received e-mails with links to the questionnaires and clear instructions on how to complete them. Questionnaires were accompanied by detailed letters to participants (see Appendix 2a, 2b and 2c for letters sent to prospective participants of the pilot, main study at Time 1 and main study at Time 2 respectively). Email invitations with a

link to the online survey were sent to the prospective respondents for the pilot study in the middle of April 2009. Data collection spanned one and half months and was concluded at the end of May 2009. Email invitations with a link to the online survey for the main study were sent to prospective respondents between October 2009 and December 2009. After a time-lag spanning between three and four months the second assessment wave commenced in February 2010 and ended in April 2010. Emails were sent to the group of individuals who completed the questionnaire at Time 1 and indicated their commitment to complete the questionnaire again at Time 2. Even though the use of incentives and reminders has not consistently been shown to increase response rates (Cook et al., 2000; Sheehan, 2001; Kaplowitz et al., 2004), reminder emails were sent to respondents one week before the close of the surveys and a gift voucher to the value of ZAR500.00 was offered as an incentive to participants who chose to enter into a lucky draw in the pilot study and one grand prize of an Apple iPod Classic and ten consolation prizes of Apple iPod Shuffles were offered to participants who opted to enter into the lucky draw in the main study based on the advice of Baruch and Holtom (2008) who encouraged the continued use of such response facilitation techniques as a potential means of enhancing response rates. Entry into the lucky draws did not compromise participants' anonymity or confidentiality as they were hosted on independent URLs from the online surveys. In this way, participants' responses to the surveys were kept separate from their lucky draw entries and it was impossible to pair them retrospectively.

5.5 Measures

The pilot investigation commenced with the construction of the scales. The research questions introduced in the previous chapter highlighted the relevance of the moral disengagement, self-efficacy, intention and software piracy behaviour constructs for this study. A questionnaire, consisting of discrete scales for each of these constructs was designed following established guidelines for scale development and questionnaire construction (DeVellis, 2003; Dyer, 1995). These variables had been investigated before in other empirical work and, to the extent that they coincided with the definitions of the variables in this study (introduced in Chapter 2), the scales in the pilot questionnaire were either inherited or adapted from item content in previous studies. An item pool for each scale was developed and disseminated to an initial group of eight subject-matter experts (consisting of psychologists, academics and information technology professionals) for review. Based on feedback ambiguous items were either re-worded or deleted. The initial item review by the panel of experts culminated in the scales used in the pilot investigation. The pilot

questionnaire can be found in Appendix 3. Statistical analyses of the results from the pilot investigation revealed potentially weak or defective items in the moral disengagement, self-efficacy, intention, and behaviour scales. These items were deleted and where necessary new items were included to construct the final questionnaire intended for use in the main investigation. The questionnaire used in the main study can be found in Appendix 4.

5.5.1 Moral disengagement scale

Moral disengagement was the primary construct under investigation in this study and, therefore, constituted a major portion of the questionnaires in the pilot and main investigations. The items in this scale were adapted from studies that explored similar constructs by LaRose and Kim (2007) [moral justification: $\alpha = 0.69$]; Bandura et al. (1996a) [moral disengagement: $\alpha = 0.82$]; Hinduja (2007) [techniques of neutralisation: $0.82 \leq \alpha \leq 0.91$]; and Wentzell (2008) [moral disengagement: $\alpha = 0.94$]. Wentzell's (2006; 2008) scale was the only one developed and used in the South African context as part of a model of social cognitive theory for understanding software piracy.

The scale developed for the pilot study consisted of 25 items, consistent with Bandura's (1986) definition of moral disengagement, associated with the four points in the self-regulation process at which moral disengagement was envisaged to be selectively activated or disengaged in the context of antisocial behaviour i.e. at the point of the behaviour (14 items), between behaviour and its consequences (4 items), at the point of the consequences of behaviour (2 items) and at the point of the victim (5 items). Based on an item analysis conducted on the pilot data, 12 items were deleted from the scale resulting in 13 items making their way into the questionnaire for the main study with 3 new items added to achieve definitional comprehensiveness. The final moral disengagement scale in the main study consisted of 16 items with 6 items representing the mechanisms of moral disengagement at the point of the behaviour; 4 items representing the mechanisms at the point between behaviour and its consequences; 3 items representing the mechanism at the point of the consequences of behaviour and 3 items representing the mechanisms at the point of the victim. There was at least one item in the scale in each questionnaire to represent each of the eight discrete mechanisms of moral disengagement Bandura (1986) proposed. All items in the pilot and main studies were measured using a 5-point Likert scale ranging from strongly disagree (1) to strongly agree (5).

5.5.2 Self-efficacy scale

The self-efficacy construct was premised on competence and proficiency and encompassed judgements of one's skills to enact specific behaviours. The four items measuring this construct in the pilot investigation were adapted with some changes to the wording from similar variables investigated in studies by Cronan and Al-Rafee (2008) [perceived behavioural control: $\alpha = 0.94$] and LaRose and Kim (2007) [self-efficacy: $\alpha = 0.84$]. Based on the results of an item analysis on the pilot data one item was identified as problematic and was omitted in the scale used in the main investigation. Items in the pilot and main studies were measured using a 5-point Likert scale ranging from strongly disagree (1) to strongly agree (5).

5.5.3 Intention scale

The intention scale used by Cronan and Al-Rafee (2008) to explore factors that influenced digital piracy formed the basis for the scale used to measure the intention construct in the pilot and main studies in this research project. The original scale consisted of three items measured on a seven-point scale [intention: $\alpha = 0.91$] (Cronan & Al-Rafee, 2008). The researcher appended a time-frame of 'in the next three to four months' to the 'near future' concept, following the example of Kwong and Lee (2002) who investigated short-term intention in their study of behavioural intentions in association with internet music piracy. The intention scale in the pilot study consisted of 4 items measured using a 5-point Likert scale ranging from strongly disagree (1) to strongly agree (5). Based on the results of an item analysis on the pilot data one item was identified as problematic and was omitted in the scale used in the main investigation.

5.5.4 Software piracy behaviour scale

This scale offered a direct measure of behaviour in the context of software piracy. It consisted of six items adapted with some changes to the wording from research by Limayem et al. (2004) [piracy level: $\rho = 0.76$); Woolley and Eining (2006) [piracy behaviour: $\alpha = 0.71$]; and Seale et al. (1998). Items were measured using a 5-point Likert scale ranging from never (1) to very often (5). The pilot and main studies tapped into software piracy behaviour demonstrated in the previous three to four months.

5.5.5 Biographical information

For descriptive purposes a biographical section was included in the questionnaires deployed in the pilot and main studies. These elicited background information about participants such as gender, age, education level, employment information and insight into the nature and quantity of computer use. The response formats used included fixed options, open-ended formats and a combination of the two.

5.6 Analysis

The statistical analysis for this research project was conducted using SAS 9.2. The statistical techniques and decision rules used to answer specific research questions in the pilot and main studies are discussed in this section.

5.6.1 Pilot study

There were three primary objectives in the pilot study. The first was to assess the quality of the items used to measure the social cognitive scales; the second was to establish the psychometric properties of the scales (i.e. reliability and validity); and the third was to engage in a preliminary analysis of the dimensionality of the scales. The research questions designed to achieve these objectives together with the statistical techniques used to explore them are discussed next.

- **Pilot study research question 1**: *Which items in the moral disengagement, self-efficacy, intention and behaviour scales are weak or defective?*

An item analysis was performed to identify weak or defective items for exclusion and to hone in on the items worth retaining in the moral disengagement, self-efficacy, intention and behaviour scales for the main study. The item analysis entailed a distribution analysis of individual items in terms of their basic descriptive statistical properties (such as means, standard deviations, skewness and kurtosis), correlation analysis between items comprising each scale, assessment of internal consistency reliability using Cronbach's coefficient alpha; exploratory factor analysis using the principal components method; and confirmatory factor analysis.

Distribution analysis typically involves an examination of patterns in data. In this analysis the distribution of scores for each scale (or subscale, hereafter subsumed by the word "scale") item was considered. Of primary concern was the univariate normality of each item due to the criticality of multivariate normality (for which univariate normality is necessary but not sufficient) in the context of structural equation modelling (Hair, Black, Babin & Anderson, 2010) for which these scales were ultimately intended in the longitudinal investigation. Garson's (2011) moderately stringent criteria for univariate normality which accommodated skewness and kurtosis values ranging from -2.00 to +2.00 were applied to the data in the pilot investigation. SAS Enterprise Miner was used to identify transformations that would optimise the normality of the variables included in the analysis. These were applied to all variables (regardless of whether or not they exceeded the moderately stringent criteria for univariate normality) to optimise their normality in preparation for their inclusion in confirmatory factor analyses later in the pilot investigation.

In the correlation analysis, Pearson's product moment correlation coefficients between items defined as having small effect sizes (i.e. correlation coefficients $r < 0.30$), according to the guidelines offered by Cohen in Rosenthal and Rosnow (2008), were flagged. Items that possessed weak associations with other items with which they were expected to be related were noted and considered for exclusion to render scales more homogenous. Items that correlated very highly with each other ($r > 0.80$) were identified to reduce possible redundancy within scales (Hair et al., 2010). This analysis yielded insight into the presence of multicollinearity. Items that correlated very highly with other items and essentially measured the same aspects of constructs as other items were considered for removal or amalgamation to streamline scales.

Internal consistency reliability was measured using Cronbach's coefficient alpha (α). The aim of the internal consistency reliability analysis was to establish that the individual items in each scale were measuring the same construct (Hair et al., 2010) and essentially, belonged with the other items in that scale. The first step towards ensuring that items that clustered together were actually measuring the same construct was the correlation analysis which sought reasonable (not too weak but not excessively strong i.e. $0.30 < r < 0.80$) intercorrelations between items (Hair et al., 2010). The second step was to review the item-total correlations to evaluate the extent to which each item correlated with the scale overall. A rule of thumb for item-total correlations was that they should exceed 0.50 (Hair et al., 2010, p. 125). Items that fell short of this cut-off were deemed to not correlate very well with the scale overall and were considered for elimination in the pilot

study. The third step was to examine the Cronbach coefficient alpha values with deleted variables. These values reflected what the scale reliability would be if a specific item was deleted from the scale. Values that exceeded the overall scale reliability were flagged since they were indicative of items whose removal would improve overall scale reliability.

While there is some technical debate about whether or not principal components analysis can be labelled an exploratory factor analysis technique (DeVellis, 2003; Field & Miles, 2010; Hair et al., 2010), it is a psychometrically sound procedure that offers insights into the linear components that exist within data and how individual variables contribute to these components (Field & Miles, 2010). As such, principal components analysis achieves a primary goal of exploratory factor analysis techniques, in general, which is to condense information from an original set of variables to produce a smaller set of composite dimensions which explain the larger set more parsimoniously (Hair et al., 2010). Orthogonal VARIMAX rotation was used to maximise the loading of each variable onto a specific factor to yield simpler, cleaner and theoretically more meaningful factor patterns (with minimal cross-loadings) in the interests of facilitating interpretation (Hair et al., 2010).

The *significance of factor loadings* was used to identify potentially problematic items from the exploratory factor analysis using the principal components method. Items with factor loadings of 0.55 were deemed statistically significant based on a sample size of 107 respondents (Hair et al., 2010). For the purpose of item analysis, the statistical significance of factor loadings was used as the first criterion to make decisions about the utility of individual items based on the results of the exploratory factor analysis. The *communality* of each variable was reviewed to establish whether or not it met an acceptable level for explanation. Communality is an index for assessing how much variance in a particular variable is accounted for by the factor solution. There is no statistical guideline to determine what constitutes a sufficiently small communality to warrant elimination. Typically, if at least half of the variance of a variable (i.e. communality = 0.50) is not taken into account, then it is not regarded as having sufficient explanatory power (Hair et al., 2010, p. 119). This decision rule was applied in the pilot investigation to identify potentially weak items. The *measure of sampling adequacy (MSA)* offers insight into the factorability of the correlation matrix which is crucial for establishing the appropriateness of the use of the exploratory factor analysis technique with a specific dataset (Hair et al., 2010). The overall MSA value and MSA values for individual variables were reviewed to identify possible problems with the items as an aggregate and potentially problematic individual items respectively. MSA values

greater than 0.50 were considered acceptable (Hair et al., 2010). The statistical significance of factor loadings, communality estimates for each variable and measures of sampling adequacy for individual variables were jointly weighed and considered to identify potentially problematic items yielded by the exploratory factor analysis.

In the confirmatory factor analysis potentially problematic items were identified by reviewing standardised path coefficients and standardised residuals. Items with statistically significant factor loadings which were greater than 0.50 were considered acceptable while those that failed to meet both these criteria became candidates for deletion. Item pairs with standardised residuals greater than an absolute value of 4.00 were flagged since they potentially contained unacceptably high levels of error and were considered for deletion. Standardised residuals for pairs of items were also examined and items with absolute values between 2.50 and 4.00 were flagged and considered for deletion if there were any other problems associated with them (Hair et al., 2010).

- **Pilot study research question 2**: *What is the reliability and validity of the moral disengagement, self-efficacy, intention and behaviour scales?*

Cronbach's coefficient alpha was used to assess the internal consistency reliability of scales in their entirety to comment on overall scale reliability. The generally agreed lower limit for Cronbach's coefficient alpha is 0.70. It was deemed admissible for this to be decreased to 0.60 due to the exploratory nature of this pilot investigation (Hair et al., 2010).

The use of confirmatory factor analysis allowed for the derivation of a slightly different estimate of internal consistency reliability from the construct reliability value. Construct reliability, which is computed from the squared sum of factor loadings for each construct and the sum of the error variance terms for that construct, was considered good when estimates were 0.70 or higher and acceptable when values fell between 0.60 and 0.70 and other components of construct validity were good. Essentially, high construct reliability indicated that measures or items consistently represented the same latent construct and was an indicator of convergent validity (Hair et al., 2010).

Convergent and discriminant validity, which constituted two key aspects of construct validity, were explored to assess the accuracy of measurement and the extent to which the items in the scales actually reflected the theoretical latent constructs they were designed to measure (Hair et

al., 2010, p. 686). To establish convergent validity, the size and significance of factor loadings, the average variance extracted and construct reliability were evaluated. Statistically significant factor loadings with a magnitude of 0.50 or higher and ideally 0.70 or higher suggested that items converged on a common point and shared a high proportion of common variance (Hair et al., 2010). The average variance extracted (AVE), which reflects the mean variance extracted for the items loading onto a latent construct, was computed for each latent construct. Estimates of 0.50 or greater indicated adequate convergence and implied that on average more of the variance in the items was explained by the latent structure imposed on them than by error (Hair et al., 2010). Construct reliability, the final indicator of convergent validity, was evaluated according to the guidelines discussed above. Discriminant validity was evaluated for all multi-dimensional representations of moral disengagement in this investigation to understand the extent to which each sub-component of the construct was truly distinct from the other sub-components. Discriminant validity was judged on the basis of the size and significance of latent factor covariances. Intercorrelations among latent factors that were high in magnitude and statistically significant indicated poor discriminant validity. These conditions coupled with the presence of cross-loadings of items onto multiple latent constructs suggested that latent constructs were potentially more similar than distinct from each other.

- **Pilot study research question 3**: *What is the most optimal structure of the moral disengagement, self-efficacy, intention and behaviour scales?*

The factorability of the correlation matrices was first established before determining the number of factors to extract from the exploratory factor analysis solutions in the pilot investigation. Hair et al. (2010) proposed the simultaneous consideration of several criteria including the *a priori* criterion (factor extraction is dictated by theoretical perspectives and is pre-determined based on the manner in which the constructs in question have been conceptualised in theory), the percentage of variance criterion (factor extraction is informed by the practical significance of the derived factors by ensuring that they explain at least a specified amount of variance which in the social science domain is at least 60% and sometimes less), the scree test criterion (the number of factors to be extracted occurs above the point at which the slope of the scree plot begins to straighten) and the latent root criterion (factors with eigenvalues greater than 1.00 are retained), also known as Kaiser's criterion, to elicit the number of factors that could be meaningfully extracted from the exploratory factor analysis solutions. These criteria combined a theoretical or conceptual perspective in terms of how many factors should be in the structure with practical

significance and empirical evidence related to the number of factors that could be reasonably supported by the factor solution (Hair et al., 2010, p. 109). These guidelines were applied to each exploratory factor analysis solution in the pilot investigation to determine the number of factors that could be meaningfully extracted.

The confirmatory factor analysis was used to establish whether the *a priori* theoretical patterns of factor loadings on pre-specified constructs, based on Bandura's (1986) conceptualisations of the social cognitive notions of moral disengagement, self-efficacy, intention and behaviour, represented the actual data. It was also used to establish whether the exploratory factor analysis solutions, which yielded results that deviated from Bandura's (1986) theoretical conceptualisations of the social cognitive constructs (when these were translated into *a priori* patterns of factor loadings onto pre-specified constructs), yielded viable models which adequately fit the actual data to make a preliminary determination of the viability of the conceptualisations of the social cognitive constructs tested in the pilot investigation. Model fit statistics were considered to comment on the extent to which the *a priori* models fit the data but due to the small sample size in the pilot investigation (N = 107) this was restricted to model fit indicators that were not sensitive to sample size. This precluded the use of the chi-square goodness-of-fit statistic which is heavily dependent on sample size and favours larger samples (Iacobucci, 2010). The standardised root mean square residual (SRMSR) was selected as the absolute fit index and the comparative fit index (CFI) was selected as the incremental fit index to comment on model fit in the pilot investigation. The criterion for good fit with the SRMSR was a value of 0.09 or lower (Iacobucci, 2010) with values closer to 0.00 indicating a better fit while the criterion for good fit with the CFI was a value of 0.95 or higher with values closer to 1.00 indicating better fit (Brown, 2006). Construct validity was considered in the form of convergent and discriminant validity to comment on the relationships between items and the latent constructs onto which they loaded in the case of the former and on the relationships between the latent constructs in the case of the latter using the decision rules discussed above. Model fit evaluations and explorations of construct validity were key to understanding whether the measurement models (which are central to confirmatory factor analysis) were valid in the pilot investigation (i.e. whether the *a priori* structure imposed by the model was supported by the data and whether the latent constructs were actually measured by the items that were envisaged to load onto them).

5.6.2 Main study

There were two primary objectives in the main study. The first was to determine the most optimal structure for the moral disengagement construct and to evaluate whether or not this structure was invariant over time and the second was to explore moral disengagement's position in a structural model of social cognitive theory. The ancillary objectives were to establish the most optimal structure and longitudinal measurement invariance for self-efficacy, intention and behaviour and to understand their positions in a structural model of social cognitive theory.

Before embarking on the statistical analyses the researcher reviewed the data to establish whether the assumptions for structural equation modelling (confirmatory factor analysis and path analysis were used in the main investigation) had been met. First, the basic data assumptions were scrutinised. These included establishing multivariate normality, linearity, homoscedasticity and the absence of multicollinearity. The data assumptions were satisfactorily met in this investigation. The second set of assumptions pertained to specific model requirements in the context of structural equation modelling. The author ensured that the models were identified (either over-identified or just-identified) by examining the minimum degrees of freedom which were required to either equal (number of free parameters = number of observations) or exceed zero (number of free parameters are less than the number of observations) in order to be just-identified or over-identified respectively. Identification was also facilitated by using appropriate scaling strategies: unit loading identification (ULI) required fixing the path coefficient or factor loading of one item to the latent construct to 1.00 to define it as the marker variable while unit variance identification (UVI) required fixing the factor variances to 1.00 which had the net effect of standardising the factors. All the models assessed in this study were either just-identified or over-identified.

Prior to answering specific research questions distribution, correlation, internal consistency reliability and exploratory factor analyses were conducted to describe and explore patterns in the data and to establish that the assumptions and pre-requisites for the confirmatory factor analyses had been met using the criteria discussed for these statistical techniques in the pilot investigation section. The research questions designed to achieve the main study's objectives together with the statistical techniques used to explore them are discussed next.

- **Research question 1.1**: *What is the most optimal structure for the moral disengagement construct?*

It is important to note that it was not possible to test Bandura's (1986) theoretical conceptualisation of moral disengagement as an eight-factor construct in this study due to methodological constraints. First, structural equation modelling is extremely sensitive to sample size and favours larger samples for more complex models (Kline, 2011). An eight-factor measurement model would be significantly more complex (with more parameters to estimate) than a four-factor measurement model (which was tested in the main longitudinal study). Therefore, it is likely to require a larger sample in order for it to be meaningfully tested. While a sample size of 200 is generally proposed as a rule-of-thumb for testing relatively simple structural equation models (requiring the estimation of no more than 10 model parameters), more complex models are likely to require larger samples to ensure a healthy ratio between sample size and model parameters to be estimated (which ideally should be 20:1) (Kline, 2011). The author believes that an eight-factor model of moral disengagement would have required a larger sample than 201 in order to be meaningfully tested. Therefore, this exploration was not deemed methodologically viable in this study which was conducted with a sample of 201 individuals. Second, the sixteen items that were ultimately included in the questionnaire to represent the eight mechanisms of moral disengagement proposed by Bandura (1986) did not allow the author to attain the three-indicator rule, or even the two-indicator rule, for that matter, to achieve identification of a measurement model assessing the dimensionality of an eight-factor construct. In other words, it was not possible to achieve a measurement model in which each of the eight factors was represented by at least three items. In fact, it was not possible to achieve a measurement model in which each of the eight factors was represented by at least two items. For these reasons, an eight-factor conceptualisation of moral disengagement was not pursued in the main longitudinal study.

Five conceptualisations of moral disengagement were tested and a sixth conceptualisation was derived from this exploration to yield the most viable interpretation of the construct in this investigation. Models for each conceptualisation were tested at Time 1 and Time 2 and model fit statistics, model diagnostics, parameter estimates and construct validity were evaluated to determine the most optimal structure for the moral disengagement construct. Four main categories of model fit indices were considered: absolute fit indices (χ^2 statistic, standardised root mean square residual [SRMSR]); indices adjusting for model parsimony (root mean square error

of approximation [RMSEA], probability of close fit [CFit]); comparative or incremental fit indices (Bentler's comparative fit index [CFI]) and predictive fit indices (Akaike's information criterion [AIC]). The criteria used to determine good model fit in the main study are presented in Table 5.3.

Table 5.3: Decision rules for assessing model fit across multiple categories of fit indices

Category	Fit index	Indicators of good fit	Indicators of adequate/mediocre fit	Indicators of poor fit
Absolute fit indices	χ^2 statistic	Not statistically significant		Statistically significant
	SRMSR	Lower values indicate better fit		> 0.10
Indices adjusting for model parsimony	RMSEA	≤ 0.05 (good)	0.05 – 0.08 (reasonable) 0.08 – 0.10 (less ideal; mediocre)	≥ 0.10
	RMSEA 90% confidence interval	Lower bound: ≤ 0.05		Upper bound: ≥ 0.10
	CFit	Not statistically significant (RMSEA < 0.05)		Statistically significant (RMSEA ≥ 0.05)
Comparative or incremental fit indices	CFI	> 0.95	0.90 – 0.95	< 0.90
Predictive fit indices	AIC	Smaller values suggest better fit		

Based on acceptable to good levels of model fit, model diagnostics were performed to identify localised areas of strain and sources of ill-fit. These, in turn, were pre-requisites for the examination of path estimates, the accurate and valid interpretation of which were dependent on the conditions of acceptable fit and the absence of localised areas of strain and sources of poor fit. Residuals and modification indices were inspected to detect localised areas of strain and possible sources of ill-fit. Residuals with absolute values smaller than 2.58 were ideal, since they suggested that the observed covariances between pairs of items were accurately predicted by the measurement model (Hair et al., 2010). However, residuals with absolute values less than 4.00 were not reflective of an unacceptably high degree of error and, consequently, did not raise serious concern, resulting in them being interpreted as satisfactory. The presentation of lone standardised residuals in solutions was not deemed problematic as most solutions typically can absorb a couple of elevated residuals. The presence of consistent patterns of elevated residuals in solutions was indicative of strain and ill-fit in the models tested in this investigation (Hair et al., 2010). Modification indices were reviewed to establish whether the addition (Lagrange multiplier test) or deletion (Wald test) of paths would enhance the overall fit of the models under review. The re-specification of models was only considered if the proposed additions or deletions of paths were theoretically defensible and statistically viable.

Acceptable levels of model fit and the absence of localised strain and sources of ill-fit in solutions allowed the examination of model parameter estimates to be pursued. The extent to which parameter estimates made statistical (no Heywood cases; statistically significant) and substantive (magnitude and direction of factor loadings) sense was evaluated. Factor loadings, factor correlations and indicator error variances, which were classified as parameter estimates, were examined to confirm that they did not assume illogical or out-of-range values (standardised factor loadings and correlations did not exceed 1.00 and there were no negative factor or indicator error variances) and that they were statistically significant. Factor loadings that were in the expected direction with magnitudes greater than 0.50 were substantively viable since they reflected items that were meaningfully associated with the latent constructs onto which they were specified to load.

The examination of construct validity was the final step in the assessment of the structure of models to identify which theoretical conceptualisations were most optimal. Convergent and discriminant validity were used as indicators of construct validity. Convergent validity, which reflected the extent to which the items that measured latent constructs converged or shared a high proportion of variance in common, was assessed using average variance extracted and construct reliability estimates. Discriminant validity, which conveyed the extent to which latent constructs were genuinely different from one another, was judged on the basis of the size and significance of latent factor covariances. Average variance extracted values ≥ 0.50 and construct reliability estimates ≥ 0.70 were indicative of adequate convergence while intercorrelations among latent factors that were high in magnitude and statistically significant indicated poor discriminant validity. These conditions coupled with the presence of cross-loadings of items onto multiple latent constructs suggested that latent constructs were potentially more similar than distinct from each other.

The same criteria used to ascertain which theoretical conceptualisation of moral disengagement was most optimal structurally were used to establish the viability of the uni-dimensional conceptualisations of the self-efficacy, intention and behaviour variables in the main study.

- **Research question 1.2**: *Is the structure of moral disengagement invariant over time?*

The longitudinal investigation in which the researcher attempted to establish temporal precedence relied on the equality of measurement of moral disengagement, self-efficacy, intention and

behaviour over time. Tests of longitudinal measurement invariance were used to verify that the structure of each construct and its measurement was temporally stable before proceeding to the analysis of temporal precedence. Three tests were performed: the first was to test for equal form; the second was to test for the equality of factor loadings and the third was to test for the equality of indicator error variances. The aim of the equal form test was to establish whether the constructs held the same factor structure across measurement occasions. Model fit statistics, model diagnostics and parameter estimates were examined for separate models at Time 1 and Time 2. If overall fit statistics were consistent with good model fit, fit diagnostics indicated the absence of significant areas of strain, and indicators were strongly and significantly related to the latent constructs for the independent models measuring the same underlying construct at two different points in time, then equal form was likely. Once the viability of individual models was established, they were incorporated into a single confirmatory factor analysis solution in which the error terms for identical items loading onto identical latent constructs across time were correlated to cater for the additional variance that was likely to exist between repeated measures due to temporally stable method effects. The presence of statistically significant indicator error covariances and the test-retest covariance of the latent constructs offered further evidence that the same factor structure was present at both testing occasions. Once it was determined that the factor structure of constructs was temporally equivalent across measurement points it was possible to conduct additional tests to examine other aspects of measurement invariance such as equality of factor loadings and equality of indicator error variances. The equal factor loadings test held the factor loadings of items measured repeatedly across two measurement points to equality. A chi-square difference test between the hierarchical equal form model and equal factor loadings model was used to assess the extent to which the equality constraints significantly degraded model fit. Non-significant results indicated no significant decrement to model fit and implied that identical items demonstrated equivalent relationships to identical latent constructs over time. Significant results, on the other hand, indicated a significant decrement in model fit when factor loadings were held to equality suggesting that the factor loadings of identical items loading onto identical latent constructs measured at two points in time were not equivalent. In the test for equality of indicator error variances the error variances of identical items measured at both assessment points were held to equality. A chi-square difference test between the hierarchical equal factor loadings and the equal indicator error variances models was used to assess the extent to which the equality constraints significantly degraded model fit. Significant results indicated significant decrement to model fit and implied that the error variances of identical items over time were temporally non-invariant (i.e. they were not equal across measurements) and the condition of heterogeneity of

variance existed. Brown (2006) asserted that this condition was not uncommon in repeated measures research designs and that in actual datasets the test for equality of residual variances generally failed. He further suggested that the equality of indicator error variances was not as important as the equal form and the equal factor loadings tests to the overall determination of longitudinal measurement invariance. Thus, the absence of this condition in the solutions evaluated in the main study was not considered cause for serious concern.

- **Research question 2.1**: *What position does moral disengagement occupy in a structural model of social cognitive theory?*

The original approach envisaged for answering this research question was to test a series of cross-lagged panel models comprised of moral disengagement paired with self-efficacy, intention and behaviour measured at the two independent assessment points in turn. Chi-square difference tests between cross-lagged panel models in which the variances of latent constructs and disturbance terms and the estimates of cross-paths were allowed to be freely estimated and corresponding models in which cross-paths were held to equality were intended to yield insight into whether cross-paths were equal or whether they were significantly different from one another. However, this approach did not yield interpretable results and was abandoned. The original approach was designed to compare unstandardised cross-paths with each other to comment on whether or not they were significantly different. However, the comparison of interest in these models was the standardised cross-paths so an alternate approach was attempted to answer this research question in which the variances of latent constructs were fixed at 1.00 and variances of disturbance terms were set to be equal in the cross-lagged panel models. This had the effect of rendering the unstandardised estimates of cross-paths equal to their standardised counterparts so that when chi-square difference tests were performed between these models and corresponding models in which cross-paths were held to equality, they were in fact assessing the extent to which the standardised cross-paths were equivalent to or significantly different from one another. This alternate approach to the research question yielded one interpretable result which supported the notion that moral disengagement preceded intention which, while not ideal (because it was not possible to comment on temporal precedence for any of the other pairs of constructs which implied that this research question could not be answered in its entirety using this approach), provided a crucial point of departure for further explorations of moral disengagement's position in a structural model of social cognitive theory. Using this finding as a starting point the researcher constructed and tested a series of mediation models based on logical deductions from the empirical results coupled with

theoretical insights and previous empirical research. Mediation models were evaluated by first establishing adequate model fit and confirming there were no points of strain in the solutions before proceeding to an analysis of parameter estimates, understanding the percentage of variance in the endogenous variables explained by predictor variables and identifying the presence of mediating variables in the solutions by reviewing the standardised indirect effects estimates.

- **Research question 2.2**: *What positions do the ancillary social cognitive constructs of self-efficacy, intention and behaviour occupy in a structural model of social cognitive theory?*

The same approach that was used to understand moral disengagement's position in a structural model of social cognitive theory was used to piece together the likely temporal sequences between self-efficacy, intention and behaviour by testing a series of mediation models to work out their positions relative to moral disengagement and to each other.

5.7 Ethical considerations

Moral disengagement, the cornerstone of this study, was only activated in antisocial contexts, which rendered this investigation contingent on the elicitation of antisocial behaviour. This study, therefore, aimed to elicit self-reports of software piracy behaviour. This potentially posed ethical risks to participants since software piracy is a criminal offence. Previous studies that investigated software piracy behaviour (Limayem et al., 2004; Woolley & Eining, 2006; Eining & Christensen, 1991; Sims et al., 1996; Al-Jabri & Abdul-Gader, 1997) traditionally managed these ethical risks by ensuring anonymity. Drawing on this convention, the author ensured anonymity so that responses could not be traced back to specific individuals in the dataset. Specific steps that were taken included not requiring names, identity numbers or other identifying information on completed questionnaires in the both the pilot study and the main investigation. It was, however, necessary to match the responses collected at Time 1 with those obtained at Time 2 in the main study. To facilitate the matching process, whilst maintaining anonymity, participants were asked for a combination of their mother's maiden name with the last four digits of their mobile telephone numbers. They were asked to ensure the consistency of this information in both questionnaires. To honour other ethics best practices in research the following steps were taken. All respondents in this study were volunteers. Informed consent was sought from respondents prior to their decision to take part in the research, via a participant information letter which outlined the details of the study, requirements and expectations from potential respondents and

the benefits and risks associated with choosing to participate. Confidentiality was assured by ensuring that no one other than the researcher and her supervisor had access to the responses. Feedback was provided to both participating organisations and respondents in the form of an executive summary of aggregated results. The author applied for and was granted ethics clearance to conduct this study by the academic institution. The ethics clearance certificate is included in Appendix 5.

5.8 Conclusion

Following the methodology outlined in this chapter the data from the pilot and main investigations were statistically analysed. The results of these analyses are discussed in the next chapter.

CHAPTER 6: RESULTS

6.1 Introduction

This chapter will outline the results of the preliminary pilot and main longitudinal studies conducted to explore the research questions based on the theoretical gaps identified in this study. The aim of the pilot study was to construct and evaluate the efficacy of a moral disengagement scale and to engage in a preliminary analysis of the dimensionality of moral disengagement. Its secondary objectives were to construct and analyse the efficacy and structure of the scales for self-efficacy, intention and behaviour. In this chapter detailed results of the moral disengagement scale investigated in the pilot study are presented while only a summary of the pilot study results of the proficiency-based self-efficacy, intention and behaviour scales are provided, with the details of these analyses included in Appendix 6. In the first part of this chapter the findings of the pilot investigation and their implications will be outlined. The first part will culminate in a discussion of the conclusions that emerged from the scale construction exercise and will outline how the results of this preliminary study informed the scales that were ultimately used in the longitudinal investigation.

The second part of this chapter will report on the results of the main longitudinal study. The main longitudinal study was essentially designed to accomplish two research objectives. The first was to explore the internal structural properties of the moral disengagement construct with a view to understanding its dimensionality and longitudinal measurement invariance (details of these results are presented in this chapter). An ancillary aim falling within the ambit of the first objective was to explore the dimensionality and longitudinal measurement invariance of the other social cognitive constructs (viz. proficiency-based self-efficacy, intention and behaviour) included in this investigation (this chapter presents a summary of these results and provides further details in Appendix 7). The main reason for examining these additional social cognitive constructs, which were ancillary to this investigation about the activation of moral disengagement in social cognitive theory, was to demonstrate their psychometric robustness and longitudinal measurement invariance so that they could be used with reasonable confidence as a basis from which to draw conclusions about their interactions with moral disengagement and their interactions with each other in the context of the second main research objective. The second objective was to explore the temporal position of moral disengagement relative to self-efficacy,

intention and behaviour and the likely temporal sequences between the latter three constructs relative to each other.

6.2 The pilot study

The purpose of the pilot investigation was to construct a robust questionnaire with sound psychometric properties (i.e. scale reliability and construct validity) to measure moral disengagement, self-efficacy and behaviour in the main longitudinal investigation. To this end, the author identified three specific objectives. The first was to assess the quality of the items used to measure the social cognitive scales; the second was to establish the psychometric properties of the scales (i.e. internal consistency reliability and construct validity); and the third was to engage in a preliminary analysis of the dimensionality of the scales. The findings that emerged from the pilot investigation will be presented below. The Methods chapter contains details about the data analysis strategies used to answer the pilot study research questions and guidelines for how these findings were interpreted.

6.2.1 Moral disengagement

The item analysis was conducted using the original set of 25 moral disengagement items to answer the first research question. Based on an examination of how the items in the scale performed when subjected to distribution analysis, principal components exploratory factor analysis, internal consistency reliability analysis and confirmatory factor analysis, the author identified the items that appeared to be weak or defective and those that seemed worth retaining in the scale for the main longitudinal study. Once the weak or defective items had been eliminated, the author proceeded to assess the internal consistency reliability and construct validity of the trimmed moral disengagement scale to answer the second research question and to engage in a preliminary examination of the factor structure of the moral disengagement scale to answer the third research question.

6.2.1.1 Pilot study research question 1: Which items in the moral disengagement scale are weak or defective?

The Methods chapter noted that the item analysis would entail a distribution analysis of individual items in terms of their basic descriptive statistical properties (such as means, standard

deviations, skewness and kurtosis), correlation analysis between items comprising each scale, exploratory factor analysis using the principal components method, assessment of internal consistency reliability using Cronbach's coefficient alpha, and confirmatory factor analysis. The primary purpose of each step in the item analysis was to identify weak or defective items. However, whenever important or interesting points arose along the way which were not of immediate relevance or importance to this main objective, but which offered a rationale for the author's approach or were relevant for understanding and contextualising the other research objectives that formed part of the pilot and main longitudinal studies, the author acknowledged them.

Descriptive statistics for the original set of 25 moral disengagement items in Table 6.1 highlighted that the distribution of scores on some items (i.e. MD_MJ2, MD_MJ3 and MD_MJ4) deviated from univariate normality in terms of their shape characteristics (Joanes & Gill, 1998). In particular, they were characterised by elevated kurtosis values (greater than an absolute value of 2.00) according to Garson (2011) who proposed the moderately stringent guideline that variables with skewness and kurtosis values ranging from -2.00 to +2.00 fell within acceptable limits of univariate normality. The principal aim of the pilot investigation was to produce a robust questionnaire that would be implemented in a subsequent longitudinal study in which the technique of structural equation modelling would be applied to the data. Structural equation modelling is sensitive to variables with high levels of multivariate kurtosis values, in particular, and insists on acceptable levels of multivariate normality for which univariate normality is necessary but not sufficient in order to yield accurate and meaningful results (Hair et al., 2010). Therefore, it was ensured that all items in the pilot questionnaire possessed acceptable levels of univariate normality (less than an absolute value of 2.00 for skewness and kurtosis) in the hope that this would contribute to acceptable levels of multivariate normality (discussed in detail later) for confirmatory factor analysis in the pilot study and for both confirmatory factor analysis and path analysis in the longitudinal investigation. To achieve this, transformations were performed. The author used SAS Enterprise Miner for guidance about the transformations that would optimise the problematic items to render them univariate normal.

However, in addition to commenting on the transformations that could be used to optimise the MD_MJ2, MD_MJ3 and MD_MJ4 items for normality, SAS Enterprise Miner also proposed transformations for the other items in the moral disengagement scale. As a test for whether or not to incorporate the suggestions made by SAS Enterprise Miner for the other items, the author

Table 6.1: Simple descriptive statistics for original and transformed moral disengagement items

		Original MD item				Transformed MD item			
	Variable	**Mean**	**SD**	**Skewness**	**Kurtosis**	**Mean**	**SD**	**Skewness**	**Kurtosis**
1	MD_MJ1	2.78	1.49	0.08	-1.57	1.19	0.15	-0.22	-1.57
2	MD_MJ2	1.64	0.92	1.62	2.25	0.37	0.47	0.86	-0.44
3	MD_MJ3	1.52	0.89	2.07	4.31	0.30	0.45	1.22	0.40
4	MD_MJ4	1.69	1.00	1.85	3.24	0.40	0.48	0.90	-0.14
5	MD_MJ5	2.64	1.50	0.31	-1.43	1.32	0.75	0.31	-1.43
6	MD_MJ6	2.30	1.32	0.76	-0.68	1.46	0.42	0.46	-1.05
7	MD_EL1	2.15	1.24	0.97	-0.15	1.41	0.40	0.63	-0.73
8	MD_EL2	1.87	1.06	1.34	1.17	1.14	0.15	0.72	-0.43
9	MD_EL3	1.87	1.07	1.48	1.75	1.14	0.15	0.77	-0.23
10	MD_EL4	1.90	1.16	1.43	1.20	0.49	0.53	0.66	-0.69
11	MD_AC1	2.35	1.39	0.67	-0.98	1.47	0.44	0.43	-1.25
12	MD_AC2	2.51	1.41	0.44	-1.26	1.26	0.70	0.44	-1.26
13	MD_AC3	3.08	1.52	-0.23	-1.53	1.22	0.15	-0.52	-1.35
14	MD_AC4	2.26	1.38	0.74	-0.90	1.43	0.44	0.50	-1.22
15	MD_DISP1	1.87	1.04	1.40	1.44	1.11	0.11	0.68	-0.38
16	MD_DISP2	2.24	1.32	0.78	-0.68	1.43	0.42	0.49	-1.08
17	MD_DIFF1	2.42	1.35	0.45	-1.30	1.21	0.68	0.45	-1.30
18	MD_DIFF2	2.30	1.33	0.69	-0.91	1.46	0.43	0.43	-1.19
19	MD_DOC1	2.35	1.29	0.70	-0.74	1.48	0.41	0.39	-1.06
20	MD_DOC2	2.00	1.08	0.90	-0.25	1.37	0.36	0.58	-0.79
21	MD_AOB1	3.25	1.48	-0.29	-1.45	1.55	0.33	-0.54	-1.17
22	MD_AOB2	2.29	1.14	0.73	-0.58	1.47	0.37	0.38	-0.86
23	MD_AOB3	3.15	1.44	-0.32	-1.39	1.53	0.33	-0.57	-1.18
24	MD_DEH1	2.39	1.30	0.78	-0.58	1.49	0.41	0.44	-0.91
25	MD_DEH2	2.29	1.27	0.94	-0.22	1.46	0.40	0.58	-0.67

effected transformations only on the items that suffered from univariate normality deviations and tested this set of items in the context of a confirmatory factor analysis for insights into their multivariate normality. Then, the author transformed all the moral disengagement items in line with the recommendations made by SAS Enterprise Miner (regardless of whether or not the item demonstrated acceptable levels of skewness and kurtosis to be deemed univariate normal) and tested this set of items in the context of a confirmatory factor analysis for insights into their multivariate normality. The author found that the normalised multivariate kurtosis (NMK) value for the set of items in which only those that presented with deviations in terms of univariate normality were transformed was NMK = 15.85. In comparison, the normalised multivariate kurtosis indicator for the set of items in which all the items were transformed in line with the recommendations made by SAS Enterprise Miner, regardless of whether or not they were univariate normal, was NMK = 12.91. This exercise revealed that when all the moral disengagement items were transformed to optimise them for normality the normalised multivariate kurtosis value indicated a higher level of multivariate normality than when only the items that deviated from univariate normality were transformed to remedy their univariate skewness and kurtosis levels to bring them in line with acceptable guidelines. Thus, the author opted to transform all the items in the moral disengagement scale to improve multivariate normality which was critical for confirmatory factor analyses and path analyses which were

important in later parts of the pilot study and in the main longitudinal study. Once transformed, all the variables possessed skewness and kurtosis values ranging from -2.00 to +2.00 which conformed to Garson's (2011) guidelines for univariate normality. Square root, exponentiation (to the power of 0.2, 0.25 and 0.4) and log (to the base 10) transformations were used. These transformed moral disengagement items were carried forward into subsequent statistical analyses to conduct the item analysis and to assess scale reliability, convergent validity and dimensionality.

The correlation analysis in Table 6.2 highlighted items MD_MJ3 and MD_AOB2 as potentially problematic. Using Cohen's multipurpose power tables, a correlation coefficient of 0.30, associated with a medium effect size (Rosenthal & Rosnow, 2008), was used as the criterion for detecting reasonable effect sizes for correlation coefficients in the pilot investigation. Of the 25 pairs of inter-item correlations involving MD_MJ3, 13 possessed coefficients less than 0.30 and 16 of the 25 inter-item correlations for MD_AOB2 were less than 0.30. Field and Miles (2010) recommended reviewing the intercorrelations of variables as the first step in principal components exploratory factor analysis. As a rule of thumb they suggested that if variables had many correlations which were less than 0.30 then they should be considered for exclusion. With small effect sizes obtained individually for correlations between MD_MJ3 and MD_AOB2 and more than half the remaining items in the moral disengagement scale respectively, these items were flagged as potentially problematic and were considered for exclusion.

The exploratory factor analysis exploration using principal components factor analysis allowed the author to examine the underlying structure of the moral disengagement scale. The primary aim of this analysis in this section was to aid in the identification of weak or defective items in the moral disengagement scale. The first step was to analyse the underlying factor structure of the scale without specifying the number of factors to be extracted in the solution. The results of this analysis revealed that moral disengagement separated into four factors (see Table 6.3) using the latent root criterion of eigenvalues greater than 1.00 as the cut-off.

Table 6.2: Correlation analysis of items in the moral disengagement scale

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	MD_MJ1	1.00																							
2	MD_MJ2	.35***	1.00																						
3	MD_MJ3	.25**	.64***	1.00																					
4	MD_MJ4	.42***	.58***	.56***	1.00																				
5	MD_MJ5	.64***	.43***	.27**	.50***	1.00																			
6	MD_MJ6	.59***	.33***	.27**	.49***	.65***	1.00																		
7	MD_EL1	.25*	.45***	.32***	.42***	.46***	.59***	1.00																	
8	MD_EL2	.40***	.47***	.34***	.52***	.55***	.54***	.53***	1.00																
9	MD_EL3	.42***	.59***	.48***	.55***	.60***	.56***	.59***	.73***	1.00															
10	MD_EL4	.41***	.55***	.48***	.58***	.60***	.63***	.75***	.57***	.77***	1.00														
11	MD_AC1	.40***	.44***	.30**	.45***	.54***	.55***	.55***	.48***	.56***	.56***	1.00													
12	MD_AC2	.51***	.47***	.33**	.46***	.64***	.58***	.54***	.58***	.66***	.58***	.74***	1.00												
13	MD_AC3	.62***	.40***	.28**	.44***	.68***	.61***	.45***	.49***	.54***	.51***	.64***	.75***	1.00											
14	MD_AC4	.28**	.35***	.31**	.42***	.41***	.34***	.45***	.38***	.49***	.47***	.50***	.63***	.55***	1.00										
15	MD_DISP1	.41***	.64***	.39***	.57***	.56***	.51***	.54***	.67***	.71***	.66***	.56***	.60***	.54***	.40***	1.00									
16	MD_DISP2	.31**	.30**	.15	.28**	.34***	.30**	.33***	.43***	.45***	.37***	.42***	.44***	.52***	.38***	.53***	1.00								
17	MD_DIFF1	.55***	.36***	.26**	.49***	.64***	.62***	.45***	.68***	.61***	.53***	.56***	.69***	.68***	.46***	.62***	.51***	1.00							
18	MD_DIFF2	.28**	.25**	.28**	.29**	.45***	.41***	.42***	.35***	.49***	.45***	.46***	.53***	.55***	.42***	.52***	.33***	.54***	1.00						
19	MD_DOC1	.50***	.40***	.23*	.44***	.64***	.62***	.56***	.60***	.65***	.62***	.61***	.71***	.61***	.54***	.61***	.30**	.63***	.53***	1.00					
20	MD_DOC2	.41***	.48***	.38***	.61***	.49***	.63***	.61***	.64***	.57***	.61***	.56***	.59***	.56***	.52***	.60***	.37***	.61***	.39***	.58***	1.00				
21	MD_AOB1	.47***	.28**	.18**	.39***	.56***	.45***	.33***	.40***	.40***	.44***	.39***	.37***	.51***	.36***	.41***	.36***	.46***	.32***	.44***	.40***	1.00			
22	MD_AOB2	.09	.11	<-.001	.31**	.20*	.19*	.30**	.31**	.22*	.23**	.22*	.13	.12	.18	.26**	.27**	.18	.17	.31**	.28**	.47***	1.00		
23	MD_AOB3	.38***	.26**	.17	.46***	.54***	.46***	.45***	.37***	.46***	.47***	.42***	.41***	.49***	.41***	.43***	.35***	.43***	.28**	.41***	.39***	.72***	.53***	1.00	
24	MD_DEH1	.38***	.38***	.25**	.48***	.50***	.43***	.48***	.38***	.42***	.50***	.39***	.39***	.46***	.35***	.35***	.27**	.43***	.31**	.46***	.42***	.66***	.50***	.71***	1.00
25	MD_DEH2	.34***	.40***	.26**	.53***	.49***	.42***	.47***	.32***	.45***	.55***	.40***	.42***	.43***	.36***	.40***	.25**	.40***	.28**	.46***	.40***	.63***	.47***	.69***	.88***

* p < 0.05
** p < 0.01
*** p < 0.001

Table 6.3: Principal components exploratory factor analysis of moral disengagement as a 1, 2 and 4-factor solution

		1-factor MD	2-factor MD		4-factor MD			
		Factor 1	Factor 1	Factor 2	Factor 1	Factor 2	Factor 3	Factor 4
1	MD_MJ1	**0.62**	**0.55**	0.28	0.21	0.15	0.19	**0.82**
2	MD_MJ2	**0.63**	**0.65**	0.11	0.27	0.11	**0.79**	0.13
3	MD_MJ3	0.47	**0.55**	-0.01	0.11	-0.007	**0.84**	0.11
4	MD_MJ4	**0.70**	**0.60**	0.36	0.26	0.34	**0.67**	0.23
5	MD_MJ5	**0.78**	**0.67**	0.40	0.43	0.30	0.23	**0.65**
6	MD_MJ6	**0.75**	**0.68**	0.32	0.48	0.23	0.24	**0.54**
7	MD_EL1	**0.71**	**0.64**	0.33	**0.62**	0.32	0.37	-0.02
8	MD_EL2	**0.74**	**0.73**	0.21	**0.64**	0.18	0.37	0.17
9	MD_EL3	**0.81**	**0.81**	0.23	**0.64**	0.19	**0.50**	0.18
10	MD_EL4	**0.81**	**0.74**	0.33	**0.54**	0.30	**0.55**	0.18
11	MD_AC1	**0.74**	**0.72**	0.23	**0.67**	0.18	0.21	0.28
12	MD_AC2	**0.81**	**0.83**	0.17	**0.73**	0.09	0.22	0.42
13	MD_AC3	**0.78**	**0.74**	0.29	**0.60**	0.18	0.11	0.61
14	MD_AC4	**0.63**	**0.59**	0.23	**0.61**	0.20	0.18	0.12
15	MD_DISP1	**0.78**	**0.78**	0.21	**0.66**	0.18	0.45	0.15
16	MD_DISP2	**0.55**	**0.50**	0.22	**0.63**	0.19	0.002	0.06
17	MD_DIFF1	**0.78**	**0.76**	0.25	**0.67**	0.16	0.15	0.47
18	MD_DIFF2	**0.59**	**0.60**	0.14	**0.65**	0.09	0.07	0.19
19	MD_DOC1	**0.79**	**0.73**	0.32	**0.67**	0.25	0.19	0.35
20	MD_DOC2	**0.76**	**0.73**	0.25	**0.60**	0.22	0.41	0.19
21	MD_AOB1	**0.65**	0.31	**0.77**	0.23	**0.71**	0.06	0.40
22	MD_AOB2	0.38	0.03	**0.73**	0.25	**0.76**	-0.04	-0.24
23	MD_AOB3	**0.66**	0.30	**0.82**	0.27	**0.79**	0.10	0.26
24	MD_DEH1	**0.67**	0.29	**0.84**	0.17	**0.82**	0.25	0.25
25	MD_DEH2	**0.66**	0.30	**0.82**	0.16	**0.80**	0.30	0.23

In this solution, moral justification broke away from the other components of moral disengagement at the point of the behaviour with which it was grouped (i.e. euphemistic labelling and advantageous comparison) in Bandura's (1986) analysis and seemed to split into two distinct factors in the four-factor solution. The first pertained to moral justification based on broader ideals and the greater good and the second pertained to moral justification for the purpose of individual benefit. The third factor in this analysis consisted of an amalgam of moral disengagement mechanisms (i.e. elements from moral disengagement at the point of the behaviour [euphemistic labelling; advantageous comparison], between behaviour and its consequences [displacement of responsibility; diffusion of responsibility] and moral disengagement at the point of the consequences of behaviour [distortion or minimisation of consequences]). The fourth factor consisted of the two dimensions that constituted moral disengagement at the point of the victim (Bandura, 1986) namely attribution of blame and dehumanisation. A closer examination of the items that constituted the moral justification sub-scale revealed that three items pertained to justifications in the interests of individual gain (MD_MJ2, MD_MJ3, MD_MJ4) while the other three items pertained to the rationalisation of reprehensible behaviour for broader ideals such as important work (MD_MJ1) and the greater good (MD_MJ5, MD_MJ6). A qualitative re-examination of the remaining five items with careful consideration of the definition of moral justification used in this study yielded MD_MJ1

and MD_MJ6 as offering adequate coverage of the construct. On the basis of this qualitative analysis, the researcher opted to delete MD_MJ2, MD_MJ4 and MD_MJ5. Based on the preceding discussion, item MD_MJ3 had already been considered for deletion. Since items MD_MJ2 and MD_MJ4 were most closely associated with it in the principal components exploratory factor analysis, they too were considered for deletion. Items MD_MJ5 and MD_MJ6 were based on the common theme of justifying software piracy for the sake of the greater good. Of these items, MD_MJ5 was longer and more complexly phrased and was considered for deletion in favour of the shorter and more readily understandable MD_MJ6.

The four-factor solution in the principal components exploratory factor analysis also revealed that the factor loading of MD_EL4 was not statistically significant (0.54) but by only a very narrow margin. In addition, cross-loadings were noted for items MD_EL3 and MD_EL4. Hair et al. (2010, p.119) recommended that when variables cross-load they become candidates for deletion because they complicate the factor solution by loading onto multiple factors and, thereby, preclude a simple factor structure rendering the interpretation of factors difficult if not impossible (Hair et al., 2010, p. 119). Based on these considerations, MD_EL3 and MD_EL4 for considered for deletion in the pilot investigation.

Hair et al. (2010, pp. 109-110) advised that factor extraction be based on the joint consideration of several criteria including the a priori criterion, the percentage of variance criterion and the scree test criterion in conjunction with the latent root criterion. While the a priori criterion suggested that four factors be extracted from the principal components exploratory factor analysis of the moral disengagement construct as defined by Bandura (1986), these a priori factors did not correspond with the four factors that emerged from the solution using the latent root criterion (the default in SAS when the number of factors to be extracted is unspecified). Thus, the principal components exploratory factor analysis of the moral disengagement scale, in which the number of factors to be extracted was unspecified, produced a four-factor solution which did not correspond with Bandura's (1986) four-factor conceptualisation of moral disengagement on the basis of the four points in the self-regulation process at which the mechanisms were likely to be activated and, consequently, did not support Bandura's (1986) structure of moral disengagement as a four-factor construct. A closer inspection of the four factors yielded in the principal components exploratory factor analysis suggested that there was no reasonable meaning that could be assigned to them to offer an alternate organisation of the moral disengagement mechanisms that was meaningful. Therefore, the emergent four-factor solution yielded by the principal components exploratory

factor analysis was abandoned and was not carried over into further analyses of the moral disengagement construct such as internal consistency reliability analyses and confirmatory factor analyses. Instead, the author included Bandura's (1986) four-factor conceptualisation of the construct that had its roots in social cognitive theory in these subsequent analyses.

Using the scree test criterion of factor extraction, the author noted two alternative viable factor structures for moral disengagement in the context of the principal components exploratory factor analysis. The point at which the scree-plot started levelling off in the four-factor solution based exclusively on the latent root criterion suggested that moral disengagement could also potentially be represented as either a single-factor solution or as a two-factor solution. There is some contention about where on the scree plot the cut-off for factor extraction should be: one rule is that all the factors above the elbow of the scree plot be considered for extraction and another is that all the factors above the elbow be included together with the factor at the point at which the scree plot commences its descent (Field & Miles, 2010). The first rule lent support to the notion of moral disengagement as a uni-dimensional construct while using the second rule, the two-factor solution of moral disengagement emerged as viable. On the basis of this finding, the author specified one and two factors as the number of factors to be extracted in two additional separate exploratory factor analyses of the moral disengagement scale. The reason for pursuing this line of investigation was that previous empirical research had reported support for moral disengagement as a single-factor construct (Bandura et al., 1996a; 2001b;) and preliminary evidence that moral disengagement could potentially be a two-factor construct (Hymel et al., 2005; Jackson & Sparr, 2005) based on a distinction between the moral disengagement mechanisms that seemed to support an internal locus of responsibility interpretation (viz. moral justification, euphemistic labelling, advantageous comparison, distortion of consequences) and those that appeared to support an external locus of responsibility interpretation (viz. displacement of responsibility, diffusion of responsibility, attribution of blame, dehumanisation).

Interestingly though, the results of the principal components exploratory factor analysis solution in which two factors were specified did not correspond with the two-factor solution for which support had been found in previous empirical research. Instead, the items seemed to split into two factors on the basis of whether or not the victims were present as the objects of dissociation in the justifications individuals used to distance themselves from their injurious behaviour and its negative consequences. According to this interpretation of moral disengagement, items from the moral justification, euphemistic labelling, advantageous comparison, displacement of

responsibility, diffusion of responsibility and distortion of consequences mechanisms clustered together to form the first factor while items from the attribution of blame and dehumanisation mechanisms clustered together to form the second factor. This novel two-factor solution seemed to be meaningful in the context of the object of dissociation interpretation even though it had no theoretical basis in social cognitive theory and was incorporated as one of the interpretations of the moral disengagement construct tested in the subsequent analyses in the pilot investigation to comment on the issues of weak or defective items and scale reliability and validity on the basis of the support found for it in the principal components exploratory factor analysis. With regard to identifying weak or defective items in the moral disengagement scale, this two-factor solution based on the object of dissociation interpretation did not yield any problematic items.

The factor loadings in the principal components exploratory factor analysis in Table 6.3 appeared to support the conceptualisation of moral disengagement as a uni-dimensional construct with items MD_MJ3 and MD_AOB2 being the odd ones out relative to the other items in the scale with factor loadings < 0.50. This could have suggested that these items were loading onto other factors not catered for in the scale or that they were out of place. Hair et al. (2010) noted that for a sample size of 100 factor loadings of 0.55 and above were statistically significant at the $p < 0.05$ level with a power level of 80% and with standard errors assumed to be twice those of conventional correlation coefficients. The factor loadings of MD_MJ3 (0.47) and MD_AOB2 (0.38) were lowest in relation to the factor loadings of other items in the scale and were less than 0.55 suggesting that the correlation of these variables with the factor was not statistically significant. However, on the count of practical significance these items fell within the absolute value range of 0.30-0.40 suggesting that they met the minimum level for interpretation of structure despite not being statistically significant (Hair et al., 2010). Notwithstanding this, however, considered together with other supporting pieces of evidence, these items were considered for deletion.

In addition, the communality estimates of 12 moral disengagement items (MD_MJ1, MD_MJ2, MD_MJ3, MD_MJ4, MD_AC4, MD_DISP2, MD_DIFF2, MD_AOB1, MD_AOB2, MD_AOB3, MD_DEH1, MD_DEH2) were lower than the proposed cut-off of 0.50 which suggested that these variables did not have an acceptable level of explanatory power in the context of a one-factor solution and that, perhaps, moral disengagement could be more optimally conceived of as a multi-faceted construct in which these variables loaded onto one or more additional factors. Interestingly, the items that did not offer an adequate explanation of moral disengagement as a

uni-dimensional construct included all the items loading onto moral disengagement at the point of the victim suggesting that this component of moral disengagement was likely to function autonomously as a stand-alone element. This finding was in line with the results yielded by the principal components exploratory factor analysis of moral disengagement as a two-factor solution. The separating out of MD_DISP2 and MD_DIFF2 from the other items in the single factor solution provided initial tentative evidence for the possibility that moral disengagement at the point between behaviour and its consequences, which included the mechanisms of displacement and diffusion of responsibility, could also be an independent and autonomous element (which may or may not have been related to moral disengagement at the point of the victim). This trend for MD_DISP2 and MD_DIFF2 to separate from the factors onto which the other moral disengagement items tended to load was also apparent in the two and four-factor solutions. Thus, there was conflicting evidence for the viability of a one-factor solution for the moral disengagement construct in the pilot investigation. While this discussion did not offer immediate insights into weak or defective items for the specific purpose of this discussion, it raised interesting points which will be explored further in the context of the main longitudinal study.

Thus, the three interpretations of moral disengagement that were carried forward into the internal consistency reliability and confirmatory factor analyses of the pilot study were of moral disengagement as a four-dimensional variable as defined in social cognitive theory (Bandura, 1986), a uni-dimensional conceptualisation of moral disengagement supported in previous empirical research (Bandura et al., 1996a; 2001b; Caprara et al., 2009; Hymel et al., 2005; Moore et al., 2012) and a new interpretation of moral disengagement as a two-factor construct that emerged from the principal components exploratory factor analysis in this pilot investigation. Originally, based on a review of the theoretical and empirical literature, the author identified a four-dimensional conceptualisation, a uni-dimensional conceptualisation and a two-dimensional construal based on the locus of responsibility interpretation. Since there was no support for the two-dimensional conceptualisation based on the locus of responsibility interpretation in the pilot investigation, this interpretation was not explored further here. Thus, the results of the pilot study are based on two previously tested conceptualisations of moral disengagement and on one novel conceptualisation that emerged as viable from this analysis.

The internal consistency reliability results in Table 6.4 supported the concern surrounding items MD_MJ3 and MD_AOB2 noted in the correlation and exploratory factor analyses. For moral

disengagement as a uni-dimensional construct MD_MJ3 (r = 0.44) and MD_AOB2 (r = 0.35) had the lowest correlations with the total which suggested that, compared with other items in the scale, they did not correlate well with the scale overall (Field & Miles, 2010). When moral

Table 6.4: Internal consistency reliability of moral disengagement as a 1, 2 and 4 factor construct

		MD as a 1-factor construct		MD as a 2-factor construct		MD as a 4-factor construct	
		Correlation with total	**Cronbach α with deleted variable**	**Correlation with total**	**Cronbach α with deleted variable**	**Correlation with total**	**Cronbach α with deleted variable**
1	MD_MJ1	0.59	0.94	0.59	0.93	0.58	0.91
2	MD_MJ2	0.58	0.94	0.60	0.93	0.63	0.90
3	MD_MJ3	**0.44**	0.94	**0.46**	0.93	0.50	0.90
4	MD_MJ4	0.67	0.94	0.65	0.93	0.66	0.90
5	MD_MJ5	0.74	0.94	0.73	0.93	0.71	0.90
6	MD_MJ6	0.71	0.94	0.71	0.93	0.69	0.90
7	MD_EL1	0.68	0.94	0.67	0.93	0.67	0.90
8	MD_EL2	0.71	0.94	0.72	0.93	0.68	0.90
9	MD_EL3	0.79	0.94	0.81	0.93	0.80	0.90
10	MD_EL4	0.78	0.94	0.78	0.93	0.78	0.89
11	MD_AC1	0.71	0.94	0.73	0.93	0.71	0.90
12	MD_AC2	0.77	0.94	0.80	0.93	0.77	0.89
13	MD_AC3	0.77	0.94	0.78	0.93	0.74	0.90
14	MD_AC4	0.60	0.94	0.61	0.93	0.58	0.90
15	MD_DISP1	0.75	0.94	0.77	0.93	0.69	0.70
16	MD_DISP2	0.50	0.94	**0.49**	0.93	0.52	0.61
17	MD_DIFF1	0.74	0.94	0.75	0.93	0.69	0.55
18	MD_DIFF2	0.56	0.94	0.57	0.93	0.54	0.60
19	MD_DOC1	0.76	0.94	0.76	0.93	0.58	-
20	MD_DOC2	0.73	0.94	0.74	0.93	0.58	-
21	MD_AOB1	0.62	0.94	0.72	0.87	0.72	0.87
22	MD_AOB2	**0.35**	0.94	0.55	0.91	0.55	0.91
23	MD_AOB3	0.64	0.94	0.79	0.86	0.79	0.86
24	MD_DEH1	0.65	0.94	0.84	0.84	0.84	0.84
25	MD_DEH2	0.65	0.94	0.81	0.85	0.81	0.85
		MD as a 1-factor construct		**MD as a 2-factor construct**		**MD as a 4-factor construct**	
Scale reliability		^{F1}Items 1-25	α = 0.94	^{F1}Items 1-20	α = 0.93	^{F1}Items 1-14	α = 0.91
				^{F2}Items 21-25	α = 0.89	^{F2}Items 15-18	α = 0.70
						^{F3}Items 19-20	α = 0.73
						^{F4}Items 21-25	α = 0.89

disengagement was framed as a two and four-dimensional construct, moral disengagement at the point of the victim was consistently identified as a stand-alone dimension in which MD_AOB2 was the poorest performing item in the scale. The Cronbach coefficient alpha for the moral disengagement at the point of the victim scale when MD_AOB2 was deleted was always higher (α = 0.91) than the scale reliability obtained when it was included (α = 0.89) suggesting a tangible benefit from the removal of this item. The MD_MJ3 item fell into different sub-scales when moral disengagement was cast as a two and four-dimensional construct. In each of these contexts, MD_MJ3 was the worst performing item relative to the other items in the sub-scales it formed part of. In the context of moral disengagement as a two-factor solution the item-total correlation of the MD_DISP2 (r = 0.49) item with the total scale (representing the moral disengagement mechanisms in which the victim as the object of the dissociation was absent from

the justifications individuals used to rationalise their antisocial behaviour) fell below the 0.50 cut-off suggesting that it did not seem to correlate very well with the scale overall. However, it fell just short of the cut-off and this was the first time in the item analysis exercise that this particular item presented as potentially problematic. Therefore, the author undertook a qualitative review of the item in order to make the decision about whether to retain it or to delete it. This review highlighted that MD_DISP2 reflected a unique aspect of moral disengagement in the context of the displacement of responsibility mechanism because it captured a sense of non-responsibility for antisocial behaviour experienced by individuals by virtue of following instructions issued by a legitimate authority (i.e. their manager) in the course of doing their jobs. This item accurately captured this mechanism of moral disengagement and was, therefore, believed to be a meaningful and relevant and was retained.

The results of the confirmatory factor analysis for the one, two and four-factor solutions of moral disengagement are presented in Table 6.5. Potentially problematic items were identified by reviewing the standardised path coefficients and standardised residuals in each solution. Only 12% of the variance in moral disengagement as a unitary factor was explained by MD_AOB2 while MD_MJ3 explained 21% of the variance in the latent factor when moral disengagement was pitched as a uni-dimensional construct. These items consistently accounted for the lowest percentage of variance in the latent factors they loaded onto in the two and four-factor solutions for moral disengagement relative to the other items loading onto the same latent factors.

On the basis of these multiple pieces of corroborating evidence, items MD_MJ3 and MD_AOB2 were considered for elimination from the pilot/draft moral disengagement scale. Although MD_DISP2 also emerged as potentially problematic in the confirmatory factor analysis tests of moral disengagement as a single and two-factor construct, based on the reasons provided earlier, the author decided to retain this item in the questionnaire earmarked for use in the main longitudinal study.

An interesting pattern emerged from the results of the confirmatory factor analysis in Table 6.5 in relation to the advantageous comparison mechanism of moral disengagement. The percentage of variance explained by MD_AC4 in the one, two and four-factor solutions was consistently lower than the variance explained by the other items in the advantageous comparison construct.

Table 6.5: Confirmatory factor analysis of moral disengagement as a 1, 2 and 4-factor solution

		1-factor MD		2-factor MD		4-factor MD	
		R^2	**Factor loading**	**R^2**	**Factor loading**	**R^2**	**Factor loading**
1	MD_MJ1	0.37	0.61	0.36	0.60	0.36	0.60
2	MD_MJ2	0.37	0.61	0.38	0.61	0.38	0.61
3	MD_MJ3	**0.21**	**0.45**	**0.21**	**0.46**	**0.21**	**0.46**
4	MD_MJ4	0.45	0.67	0.44	0.66	0.44	0.67
5	MD_MJ5	0.60	0.77	0.59	0.77	0.59	0.77
6	MD_MJ6	0.55	0.74	0.55	0.74	0.56	0.75
7	MD_EL1	0.50	0.70	0.49	0.70	0.50	0.71
8	MD_EL2	0.55	0.74	0.57	0.75	0.56	0.75
9	MD_EL3	0.66	0.82	0.68	0.82	0.67	0.82
10	MD_EL4	0.64	0.80	0.64	0.80	0.64	0.80
11	MD_AC1	0.54	0.74	0.55	0.74	0.55	0.74
12	MD_AC2	0.66	0.81	0.68	0.83	0.68	0.82
13	MD_AC3	0.60	0.77	0.60	0.77	0.60	0.77
14	MD_AC4	0.38	0.62	0.38	0.61	0.38	0.62
15	MD_DISP1	0.60	0.78	0.62	0.79	0.67	0.82
16	MD_DISP2	**0.28**	0.53	**0.28**	0.53	0.33	0.57
17	MD_DIFF1	0.61	0.78	0.62	0.79	0.67	0.82
18	MD_DIFF2	0.34	0.59	0.35	0.59	0.39	0.63
19	MD_DOC1	0.62	0.79	0.63	0.79	0.61	0.78
20	MD_DOC2	0.57	0.75	0.57	0.76	0.56	0.75
21	MD_AOB1	0.37	0.60	0.53	0.73	0.53	0.73
22	MD_AOB2	**0.12**	**0.34**	0.30	0.55	0.30	0.55
23	MD_AOB3	0.38	0.62	0.62	0.78	0.61	0.78
24	MD_DEH1	0.38	0.62	0.88	0.94	0.88	0.94
25	MD_DEH2	0.38	0.62	0.85	0.92	0.85	0.92

	1-factor MD	2-factor MD	4-factor MD
Item-factor linkages	^{F1}Items 1-25	^{F1}Items 1-20 ^{F2}Items 21-25	^{F1}Items 1-14 ^{F2}Items 15-18 ^{F3}Items 19-20 ^{F4}Items 21-25
Factor correlations		$r_{F1F2} = 0.63$	$r_{F1F2} = 0.95$ $r_{F1F3} = 1.02$ $r_{F1F4} = 0.64$ $r_{F2F3} = 0.96$ $r_{F2F4} = 0.55$ $r_{F3F4} = 0.63$
Model fit statistics	$\chi^2_{(275,\ N=107)} = 791.97$, $p<0.0001$; SRMSR = 0.09; RMSEA = 0.13 [90% CI = 0.12 – 0.14], CFit < 0.001; GFI = 0.60; CFI = 0.73; Critical N = 43; AIC=891.97	$\chi^2_{(274,\ N=107)} = 584.57$, $p<0.0001$; SRMSR = 0.07; RMSEA = 0.10 [90% CI = 0.09 – 0.12], CFit < 0.001; GFI = 0.68; CFI = 0.84; Critical N = 57; AIC=686.57	$\chi^2_{(269,\ N=107)} = 576.46$, $p<0.0001$; SRMSR = 0.07; RMSEA = 0.10 [90% CI = 0.09 – 0.12], CFit < 0.001; GFI = 0.68; CFI = 0.84; Critical N = 57; AIC=688.46

Note: All factor loadings were significant at p<0.001
Warning: Although all predicted variances for the latent variables were positive in the **four-factor solution**, the corresponding predicted covariance matrix was not positive definite; it had one negative eigenvalue.

The communality estimate associated with this item in the principal components exploratory factor analysis was also lower than the minimum guideline of 0.50. Taken together, these characteristics rendered MD_AC4 a candidate for deletion.

Finally, a qualitative review of the response patterns to items MD_AC2 and MD_AC3, MD_DIFF1 and MD_AOB3 revealed a higher rate of non-response relative to the other items in the sub-scales to which they belonged (i.e. advantageous comparison, diffusion of responsibility and attribution of blame), which rendered these items candidates for deletion.

On the basis of the above-mentioned statistical and qualitative considerations, the following items were considered for deletion at various points in this analysis and were ultimately deleted from the moral disengagement scale to render it a shorter and more parsimonious scale: MD_MJ2, MD_MJ3, MD_MJ4, MD_MJ5, MD_EL3, MD_EL4, MD_AC2, MD_AC3, MD_AC4, MD_DIFF1, MD_AOB2 and MD_AOB3. The deletion of these items had the net effect of eliminating potentially problematic items from the scale which could have detracted from its psychometric soundness and of reducing the length of the final moral disengagement scale in the questionnaire.

6.2.1.2 Pilot study research question 2: What is the reliability and validity of the moral disengagement scale?

The deletion of potentially problematic items from the pilot questionnaire resulted in a significant reduction in the length of the moral disengagement scale from 25 items to 13 items. An examination of the remaining items revealed some definitional gaps in the construct and warranted the addition of three new items to fill these gaps. Due to time and resource constraints, it was not feasible to pilot a second questionnaire which included the three new items. As such, these items were reviewed by a panel of five experts and were sanctioned for inclusion into the final questionnaire for the main longitudinal investigation. It was still important, however, to establish the impact of deleting the 12 potentially problematic items from the moral disengagement scale in the pilot study even though this exercise did not produce a complete questionnaire for use in the longitudinal investigation. The main aim of this analysis was to examine the new trimmed (albeit incomplete) scale for any problems brought about by the deletion of items and to comment on its reliability, validity and dimensionality in the context of the pilot study.

Intercorrelations between the trimmed set of items (see Table 6.6) revealed only five low correlation coefficients ($r < 0.30$). These ranged from $r = 0.25$ to $r = 0.28$. These low correlations were not of grave concern in the pilot investigation. The correlation matrix generally demonstrated adequate minimum levels of association between the trimmed items remaining in the analysis. With the exception of the elevated correlation between MD_DEH1 and MD_DEH2 ($r = 0.88$) there were no excessively high correlations ($r > 0.80$) in the matrix which suggested the absence of multicollinearity. The item analysis did not reveal any other problems with the MD_DEH1 or MD_DEH2 items so these were retained in the trimmed scale. With no inherent

problems in the trimmed scale based on an examination of the descriptive and correlation statistics, the author proceeded to an examination of the internal consistency reliability of the moral disengagement scale.

Table 6.6: Correlations between items in the trimmed moral disengagement scale

		1	2	3	4	5	6	7	8	9	10	11	12	13
1	MD_MJ1	1.00												
2	MD_MJ6	.59***	1.00											
3	MD_EL1	.25*	.59***	1.00										
4	MD_EL2	.40***	.54***	.53***	1.00									
5	MD_AC1	.40***	.55***	.55**	.48***	1.00								
6	MD_DISP2	.31**	.30**	.33**	.43***	.42***	1.00							
7	MD_DISP1	.41***	.51***	.54***	.67***	.56***	.53***	1.00						
8	MD_DIFF2	.28**	.41***	.42***	.35***	.46***	.33***	.52***	1.00					
9	MD_DOC1	.50***	.62***	.56***	.60***	.61***	.30**	.61***	.53***	1.00				
10	MD_DOC2	.41***	.63***	.61***	.64***	.56***	.37***	.60***	.39***	.58***	1.00			
11	MD_AOB1	.47***	.45***	.33**	.40***	.39***	.36***	.41***	.32***	.44***	.40***	1.00		
12	MD_DEH1	.38***	.43***	.48**	.38***	.39***	.27***	.35***	.31**	.46***	.42***	.66***	1.00	
13	MD_DEH2	.34***	.42***	.47**	.32***	.40***	.25***	.40***	.28**	.46***	.40***	.63***	.88***	1.00

* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$

Earlier the author noted the reasons for pursuing an examination of moral disengagement as a one, two and four-dimensional construct in the internal consistency, exploratory and confirmatory analyses conducted as part of the item analysis exercise. These conceptualisations were carried over into this analysis of the trimmed moral disengagement scale. They facilitated preliminary commentary on the extent to which moral disengagement (a) conformed to Bandura's (1986) four-faceted theoretical conceptualisation; (b) fit the two-factor conceptualisation based on the object of dissociation interpretation suggested in the principal components exploratory factor analysis of the original moral disengagement scale; and (c) conformed to the conceptualisation of moral disengagement as a single-factor construct based on previous empirical research (Bandura et al., 1996a; 2001b) and the findings from the principal components exploratory factor analysis conducted on the original moral disengagement scale. These possible interpretations of moral disengagement were tested in the internal consistency reliability analysis and in the confirmatory factor analysis to comment on the trimmed scale's reliability and validity. The results of this analysis are presented next.

In Table 6.7 the scale reliability for the set of trimmed items when moral disengagement was treated as a uni-dimensional construct suggested that the items in the scale cohered and belonged together. The same trend was noted for the sub-scales comprised of the trimmed set of items when moral disengagement was framed as a two-factor construct. These findings indicated that the internal consistency reliability results supported the one-factor and two-factor treatments of the moral disengagement scale. However, the scale reliability of the items loading onto moral

disengagement at the point between behaviour and its consequences in the four-factor solution was lower than the recommended minimum of 0.70 proposed by Nunnally and Bernstein (1994). With a Cronbach coefficient alpha of 0.55 this low value was even lower than the cut-off (0.60) proposed for allowing preliminary conclusions to be drawn in the context of exploratory research (Hair et al., 2010). The lower reliability of this scale relative to the others, which met the minimum criterion of $\alpha \geq 0.70$ in the four-factor solution, was noted as a limitation of this conceptualisation of moral disengagement in the pilot investigation and implied that the treatment of moral disengagement as a four-factor construct was not supported by the internal consistency reliability results because the items representing the mechanisms at the point between behaviour and its consequences did not seem to cohere as a stable and consistent sub-scale. In an attempt to improve the internal consistency reliability of this scale one of the three new items that were added to the moral disengagement scale represented the displacement of responsibility mechanism which was situated in the self-regulation process at the point between behaviour and its consequences (Bandura, 1986). The other two new items were added to the euphemistic labelling and distortion of consequences mechanisms in the final moral disengagement scale.

Table 6.7: Internal consistency reliability of trimmed moral disengagement as a 1, 2 and 4 factor construct

		MD as a 1-factor construct		MD as a 2-factor construct		MD as a 4-factor construct	
		Correlation with total	**Cronbach α with deleted variable**	**Correlation with total**	**Cronbach α with deleted variable**	**Correlation with total**	**Cronbach α with deleted variable**
1	MD_MJ1	0.55	0.90	0.53	0.87	0.50	0.78
2	MD_MJ6	0.70	0.88	0.71	0.85	0.71	0.68
3	MD_EL1	0.68	0.89	0.67	0.85	0.64	0.71
4	MD_EL2	0.66	0.89	0.69	0.87	0.62	0.77
5	MD_AC1	0.68	0.89	0.71	0.85	0.64	0.72
6	MD_DISP2	0.46	0.90	0.46	0.87	0.41	0.41
7	MD_DISP1	0.72	0.89	0.75	0.87	0.64	0.50
8	MD_DIFF2	0.53	0.89	0.55	0.87	0.40	0.41
9	MD_DOC1	0.73	0.88	0.74	0.85	0.58	-
10	MD_DOC2	0.70	0.88	0.72	0.85	0.58	-
11	MD_AOB1	0.62	0.89	0.66	0.94	0.66	0.94
12	MD_DEH1	0.65	0.89	0.86	0.76	0.86	0.76
13	MD_DEH2	0.63	0.89	0.85	0.78	0.85	0.78
		MD as a 1-factor construct		**MD as a 2-factor construct**		**MD as a 4-factor construct**	
Scale reliability		^{F1}Items 1-13	α = 0.90	^{F1}Items 1-10 ^{F2}Items 11-13	α = 0.87 α = 0.89	^{F1}Items 1-5 ^{F2}Items 6-8 ^{F3}Items 9-10 ^{F4}Items 11-13	α = 0.78 α = 0.55 α = 0.73 α = 0.89

Further, the internal consistency reliability results suggested that the deletion of MD_AOB1 from both the two and four-factor solutions, in which it loaded onto the factor associated with moral disengagement at the point of the victim, would have resulted in higher scale reliability coefficients. This item was examined and the decision was made to retain it since it was the only

remaining item in the scale that represented the attribution of blame mechanism identified by Bandura (1986) in his theoretical conceptualisation as existing alongside dehumanisation in the category of moral disengagement associated with the victim. The author believed that it was imperative that all the moral disengagement mechanisms proposed by Bandura (1986) were represented in the moral disengagement scale used in the pilot and main studies. Therefore, even though this item presented as being potentially problematic when clustered with the items representing dehumanisation, the overall reliability of the scale capturing moral disengagement at the point of the victim, in which it was included, was $\alpha = 0.89$ which was well within the acceptable requirement for internal consistency reliability according to Nunnally and Bernstein (1994). Its retention ensured that all the mechanisms of moral disengagement were represented in the moral disengagement scale while still maintaining an adequate internal consistency of the sub-scale in which this particular item existed in the two and four-factor conceptualisations tested in this analysis.

All the items in the one, two and four-factor solutions in the confirmatory factor analysis sported significant factor loadings in excess of 0.50 in Table 6.8 which implied that individually none of them seemed to be problematic or out of place. However, while the four-factor solution converged, the predicted covariance matrix was not positive definite which meant that the results from this analysis were not meaningful or interpretable. This was unfortunate because it was the only conceptualisation of moral disengagement tested in the pilot study that conformed to at least one of Bandura's (1986) theoretical conceptualisations (i.e. of moral disengagement as a four-dimensional construct based on an aggregation of the eight mechanisms according to the four points in the self-regulation process at which they were likely to be activated). Nevertheless, the four-factor solution was not viable and was excluded from further analyses leaving the author with only the one and two-factor solutions to work with in the pilot study.

The goodness-of-fit indicators for the model representing moral disengagement as a two-factor construct (SRMSR = 0.06; CFI = 0.95) suggested a good fit to the data while the model depicting it as a uni-dimensional construct (SRMSR = 0.09; CFI = 0.73) offered a poor fit to the data. This finding was corroborated by the lower Akaike's information criterion score for the model representing moral disengagement as a two-dimensional construct. In the light that the model representing moral disengagement as a uni-dimensional construct had a poor fit to the data, it was not meaningful to proceed to the next step of interpreting the standardised factor loadings

Table 6.8: Confirmatory factor analysis of trimmed moral disengagement scale as a 1, 2 and 4-factor solution

		1-factor MD		2-factor MD		4-factor MD	
		R^2	**Factor loading**	**R^2**	**Factor loading**	**R^2**	**Factor loading**
1	MD_MJ1	0.34	0.58	0.32	0.57	0.32	0.56
2	MD_MJ6	0.57	0.76	0.58	0.76	0.56	0.75
3	MD_EL1	0.52	0.72	0.52	0.72	0.52	0.72
4	MD_EL2	0.54	0.73	0.57	0.75	0.56	0.75
5	MD_AC1	0.52	0.72	0.53	0.73	0.51	0.72
6	MD_DISP2	**0.25**	0.50	**0.26**	0.51	0.33	0.58
7	MD_DISP1	0.58	0.76	0.61	0.78	0.78	0.88
8	MD_DIFF2	0.32	0.57	0.33	0.58	0.36	0.60
9	MD_DOC1	0.63	0.79	0.63	0.80	0.58	0.76
10	MD_DOC2	0.59	0.77	0.61	0.78	0.58	0.76
11	MD_AOB1	0.37	0.61	0.48	0.69	0.48	0.69
12	MD_DEH1	0.40	0.63	0.91	0.95	0.91	0.95
13	MD_DEH2	0.38	0.61	0.86	0.93	0.85	0.92

	1-factor MD	2-factor MD	4-factor MD
Item-factor linkages	^{F1}Items 1-13	^{F1}Items 1-10 ^{F2}Items 11-13	^{F1}Items 1-5 ^{F2}Items 6-8 ^{F3}Items 9-10 ^{F4}Items 11-13
Factor correlations		$r_{F1F2} = 0.59$	$r_{F1F2} = 0.88$ $r_{F1F3} = 1.08$ $r_{F1F4} = 0.61$ $r_{F2F3} = 0.90$ $r_{F2F4} = 0.47$ $r_{F3F4} = 0.62$
Model fit statistics	$\chi^2_{(65, N=107)} = 247.35$, $p<0.0001$; SRMSR = 0.09; RMSEA = 0.16 [90% CI = 0.14 – 0.18], CFit < 0.001; GFI = 0.76; CFI = 0.77; Critical N = 37; AIC=299.35	$\chi^2_{(64, N=107)} = 104.04$, $p=0.001$; SRMSR = 0.06; RMSEA = 0.08 [90% CI = 0.05 – 0.10], CFit = 0.06; GFI = 0.88; CFI = 0.95; Critical N = 86; AIC=158.04	$\chi^2_{(59, N=107)} = 89.82$, $p<0.006$; SRMSR = 0.06; RMSEA = 0.07 [90% CI = 0.04 – 0.10], CFit = 0.13; GFI = 0.89; CFI = 0.96; Critical N = 92; AIC=153.82

Note: All factor loadings are significant at p<0.001
Warning: Although all predicted variances for the latent variables were positive in the **four-factor solution**, the corresponding predicted covariance matrix was not positive definite; it had one negative eigenvalue.

for this model in the pilot study. This left the author with the two-factor model of moral disengagement as the only viable solution on which to base the examination of convergent and discriminant validity.

All standardised factor loadings were significant and exceeded the minimum rule of thumb value of 0.50 proposed by Hair et al. (2010, p. 686) which suggested that the items in the two-factor solution converged on the latent constructs onto which they were envisaged to load. Thus, there was evidence of convergent validity which implied that the items loading onto the latent constructs shared a high proportion of variance in common. The construct reliability (CR) values derived from the confirmatory factor analysis for the latent constructs in the two-factor (CRF1 = 0.86; CRF2 = 0.90) solution were above the proposed 0.70 cut-off indicating the presence of internal consistency and confidence that the items loading onto the latent constructs consistently represented the common underlying constructs (Hair et al., 2010, p. 687). While this offered further evidence of convergent validity in the two-factor solution, the average variance extracted

(AVE) estimates told a somewhat different story. The average variance extracted (AVE) estimate for the first factor of the two-factor solution (AVE = 0.496) fell short of the 0.50 cut-off while the average variance extracted estimate for the second factor was 0.75; well above the recommended minimum cut-off. This suggested that while the items in the second factor of the two-factor solution demonstrated adequate convergence and implied that, on average, more of the variance in the items was explained by the latent structure imposed on them than by error, the items loading onto the first factor in the two-factor solution did not demonstrate adequate convergence implying that, on average, more of the variance in these items was explained by error than by the latent structure imposed on them (Hair et al., 2010). Despite this one piece of contradictory evidence for convergent validity, overall, the author was reasonably satisfied that the items in the two-factor solution did converge on the latent constructs onto which they were envisaged to load based on the other pieces of evidence provided earlier.

The author examined the inter-correlation between the two latent factors in the two-factor solution of moral disengagement in the pilot investigation to comment on the extent to which they could be perceived as sufficiently different from one another to conclude that they possessed discriminant validity. The intercorrelation of 0.59 between the two latent factors in the solution suggested that there was sufficient overlap between them for these factors to be considered part of the same underlying construct rather than to be treated as a two separate factors. However, it was evident from the single-factor solution that simply aggregating all the items together to form a generalised moral disengagement construct was unlikely to produce a meaningful unitary conceptualisation of moral disengagement. This offered the first clue that alternative ways to construct uni-dimensional conceptualisations of the moral disengagement scale were likely to be useful for empirically understanding the moral disengagement construct. This issue will be explored later in the next part of this chapter that reports on the results of the main longitudinal study and in the Discussion chapter. Taken together, these findings indicated that, overall, the psychometric properties of the moral disengagement scale were sound.

6.2.1.3 Pilot study research question 3: What is the most likely optimal structure of the moral disengagement scale?

A principal components exploratory factor analysis of the trimmed moral disengagement scale (see Table 6.9) revealed that a two-factor solution emerged when the number of factors to be extracted was not specified in the analysis. As with the two-factor principal components exploratory factor analysis solution for the original moral disengagement scale, two clear factors emerged: one with items representing mechanisms in which the victim was clearly absent as the object of dissociation and the other with items representing moral disengagement mechanisms in which the victim was present as the object of dissociation. The corroboration of these results from the principal components exploratory factor analysis with those yielded in the confirmatory factor analysis in which moral disengagement was tested as an a priori two-dimensional construct based on the object of dissociation interpretation suggested that, on the basis of the results yielded by the pilot study, this two-dimensional conceptualisation of moral disengagement was likely to be viable. This was a novel interpretation of the construct that had not been considered before and was incorporated as one possible way to conceptualise moral disengagement in the main longitudinal investigation in which the author explored its dimensionality.

Table 6.9: Principal components exploratory factor analysis of trimmed moral disengagement scale as a 1, 2 and 4-factor solution

		1-factor MD	2-factor MD		4-factor MD			
		Factor 1	Factor 1	Factor 2	Factor 1	Factor 2	Factor 3	Factor 4
1	MD_MJ1	**0.61**	**0.49**	0.39	0.21	0.20	**0.88**	0.16
2	MD_MJ6	**0.77**	**0.70**	0.35	**0.64**	0.22	**0.55**	-0.03
3	MD_EL1	**0.73**	**0.67**	0.32	**0.81**	0.32	-0-06	0.02
4	MD_EL2	**0.74**	**0.77**	0.18	**0.66**	0.11	0.30	0.32
5	MD_AC1	**0.74**	**0.72**	0.26	**0.67**	0.21	0.19	0.25
6	MD_DISP2	**0.55**	**0.57**	0.13	0.24	0.13	0.10	**0.88**
7	MD_DISP1	**0.78**	**0.81**	0.18	**0.66**	0.14	0.19	**0.50**
8	MD_DIFF2	**0.60**	**0.62**	0.15	**0.59**	0.15	0.0004	0.31
9	MD_DOC1	**0.80**	**0.74**	0.34	**0.72**	0.25	0.35	0.08
10	MD_DOC2	**0.77**	**0.76**	0.25	**0.74**	0.18	0.26	0.13
11	MD_AOB1	**0.67**	0.31	**0.76**	0.15	**0.70**	0.39	0.30
12	MD_DEH1	**0.69**	0.23	**0.91**	0.27	**0.90**	0.12	0.06
13	MD_DEH2	**0.68**	0.21	**0.91**	0.27	**0.90**	0.08	0.05

Interestingly, neither the principal components exploratory factor analysis nor the confirmatory factor analysis in the pilot study yielded support for moral disengagement as a four-factor construct corresponding to Bandura's (1986) four-dimensional theoretical conceptualisation. Thus, while it was not possible to comment definitively on the dimensionality of moral disengagement in the pilot investigation due to an incomplete scale and a small sample size (N =

107), preliminary analyses revealed that moral disengagement could potentially function as a two-dimensional construct. However, the high inter-correlation between the two factors hinted at the possibility that moral disengagement could also function as a uni-dimensional variable, but not one which was specified by simply aggregating all the items to load onto a single latent construct. Initial evidence tentatively pointed at an alternate possibility of moral disengagement as a three-pronged construct consisting of moral disengagement mechanisms at the point of the behaviour and at the point of the consequences of behaviour constituting the first factor, mechanisms representing moral disengagement at the point of the victim constituting the second factor and moral disengagement mechanisms at the point between behaviour and its consequences forming the third factor. Evidence of this possibility emerged in the context of the four-factor principal components exploratory factor analysis in the pilot study and will be pursued further in the main longitudinal investigation together with other possibilities that emerged from the pilot investigation in conjunction with those that emerged from the theoretical and empirical literature reviewed earlier. Thus, the dimensionality of moral disengagement was one of the focal issues in the main longitudinal investigation in which a range of possibilities was explored to arrive at more definitive conclusions about the dimensionality of the moral disengagement construct.

6.2.2 Self-efficacy, intention and behaviour

The detailed findings that emerged from the pilot study for the self-efficacy, intention and behaviour scales are presented in Appendix 6. In this section a summary of these results will be presented. Similar to the approach that was taken with the moral disengagement scale in the pilot investigation, the analysis will focus on the quality of the items used to measure each construct, the psychometric properties of each scale and a preliminary analysis of the dimensionality of each variable.

6.2.2.1 Self-efficacy

Like moral disengagement, self-efficacy is a central construct in social cognitive theory. Bandura's (1986) definition of self-efficacy gravitated towards proficiency and the perception of one's capability to successfully execute specific behaviours but framed self-efficacy as multi-faceted. In the pilot study, however, the exploration of only the proficiency-based aspect of self-efficacy construct was conducted with the main objectives of ensuring the robustness of the scale and its psychometric properties in mind.

(a) Which items in the self-efficacy scale are weak or defective?

The original self-efficacy scale consisted of four items. The correlation analysis (see Table A6.1), principal components exploratory factor analysis (see Table A6.3), internal consistency reliability analysis (see Table A6.2) and the confirmatory factor analysis (see Table A6.4) unanimously pointed to a potential problem with item SE4 in the scale. It shared the lowest correlations with the other proficiency-based self-efficacy items (r = 0.30 to r = 0.41; $p < 0.01$) rendering it the odd one out. Although the factor loading of SE4 (0.58) in the principal components exploratory factor analysis emerged as statistically significant because it exceeded the recommended cut-off of 0.55 for a sample size of 107 (Hair et al., 2010), relative to the factor loadings of the other items in the scale which ranged from 0.78 to 0.88, this item, once again, appeared to be out of place. The internal consistency reliability analysis suggested that if SE4 was deleted the overall reliability of the self-efficacy scale would increase from $\alpha = 0.79$ to $\alpha = 0.83$. Finally, the confirmatory factor analysis suggested that the factor loading of SE4 (0.40) was well below the proposed cut-off of 0.50 (Hair et al., 2010) and that it only explained 16% of the variance of the latent self-efficacy construct while the other items in the scale explained between 43% and 81% of the variance in the latent construct. Therefore, on the basis of these considerations, the decision was made to delete SE4 from the original self-efficacy scale.

(b) What is the reliability and validity of the self-efficacy scale?

The new trimmed three-item self-efficacy scale appeared to be comprised of items that cohered and belonged together with a Cronbach coefficient alpha of 0.83 (see Table A6.2). In this instance SE1 was identified as potentially problematic since its deletion would have resulted in an increase in the internal consistency reliability of the scale. The results of the principal components exploratory factor analysis for the trimmed self-efficacy scale, however, revealed that the communality estimate and Kaiser's measure of sampling adequacy for item SE1 were adequate since they exceeded the recommended acceptable minimum cut-offs of 0.50 which implied that the potential difficulties associated with this item in the internal consistency reliability analysis were not mirrored in the principal components exploratory factor analysis. The factor loading of SE1 on the latent self-efficacy construct in the confirmatory factor analysis exceeded 0.50 and it explained 42% of the variance in the latent criterion. Thus, there was no compelling evidence to support its deletion from the trimmed self-efficacy scale.

Taken together the standardised factor loadings (which ranged from 0.64 to 0.94), the average variance extracted (AVE = 0.65) and the construct reliability (CR = 0.84) of the trimmed self-efficacy scale provided evidence of adequate convergence of the scale items on the latent construct which supported the convergent (construct) validity of self-efficacy.

(c) What is the most likely optimal structure of the self-efficacy scale?

The principal components exploratory factor analysis (see Table A6.3) and the factor loadings in the confirmatory factor analysis (see Table A6.4) offered support for the notion of self-efficacy as a uni-dimensional construct in the pilot investigation.

6.2.2.2 Intention

The intention variable constituted the theoretical dependent variable in the context of the cross-sectional pilot investigation. For the purpose of this analysis, it was not leveraged in this capacity but was rather explored to assess its psychometric properties as a reliable and valid measure of this construct in the context of software piracy research.

(a) Which items in the intention scale are weak or defective?

To improve the multivariate normality of the scale, the intention items were transformed to optimise them for multivariate normality in preparation for their inclusion in confirmatory factor analysis later in the pilot investigation. Square root and log (to the base 10) transformations were used.

A qualitative review of the scale's original items indicated that one of them (INT4) referenced the likelihood of engaging in a behaviour at some point in the next year while the other items referenced one's propensity to engage in the behaviour in question in the shorter term (i.e. in the next three to four months). The decision was made to delete the INT4 item from the intention scale as it captured long-term intention while the other items in the scale tapped into short-term intention. Although the internal consistency reliability analysis indicated a problem with INT2, because its deletion would have resulted in an increase in the overall reliability of the intention scale, a qualitative analysis of the item and a consideration of the intention scale's internal

consistency reliability (α = 0.85) when it was included led to the decision to retain it in the final trimmed intention scale.

(b) What is the reliability and validity of the intention scale?

The new trimmed three-item intention scale appeared to be comprised of items that generally cohered and belonged together with a Cronbach coefficient alpha of 0.77 (See Table A6.6).

The statistically significant standardised factor loadings (which ranged from 0.86 to 0.93), the average variance extracted (AVE = 0.79) and the construct reliability (CR = 0.997) of the trimmed intention scale suggested that the items converged on the single latent construct onto which they were envisaged to load. Thus, there was evidence of convergent validity which implied that the items loading onto the underlying intention construct shared a high proportion of their variance in common.

(c) What is the most likely optimal structure of the intention scale?

The principal components exploratory factor analysis (see Table A6.7) provided preliminary evidence for the trimmed intention scale's uni-dimensional structure. The confirmatory factor analysis of the intention scale also supported the conceptualisation of intention as a uni-dimensional construct in the pilot study (see Table A6.8).

6.2.2.3 Software piracy behaviour

In the context of the pilot investigation, software piracy behaviour was measured as an instance of past behaviour.

(a) Which items in the behaviour scale are weak or defective?

The items in the software piracy behaviour scale were transformed to optimise them for normality using log (to the base 10) transformations. The statistical results suggested that BEH4 was a potentially problematic item for the following reasons: (1) its elevated kurtosis value (2.15); (2) the consistently lower inter-item correlations between BEH4 and other items in the software piracy behaviour scale (ranging from 0.57 to 0.67) when compared to the inter-item correlations

between the other five software piracy behaviour items (which ranged from 0.65 to 0.84); (3) consistently lower factor loadings in the principal components exploratory factor analysis (0.78) and confirmatory factor analysis (0.69); and (4) it accounted for the lowest amount of variance (48%) in the latent behaviour construct in the confirmatory factor analysis. On a qualitative note, the item could have been interpreted as double-barrelled which could have contributed to the statistical problems that were associated with it. The author believed that the deletion of this item would not compromise the collection of information on software piracy behaviour and the decision was made to delete it.

(b) What is the reliability and validity of the software piracy behaviour scale?

The reliability of the trimmed software piracy behaviour scale was $\alpha = 0.93$ and no overt problems were detected in the remaining scale items based on an examination of the internal consistency reliability analysis (see Table A6.11), the principal components exploratory factor analysis (see Table A6.12) and the confirmatory factor analysis (see Table A6.13).

The standardised factor loadings (0.74 – 0.92), the average variance extracted (AVE = 0.74) and the construct reliability (CR = 0.93) of the software piracy behaviour scale provided evidence for convergent validity.

(c) What is the most likely optimal structure of the software piracy behaviour scale?

The principal components exploratory factor analysis yielded evidence for a uni-dimensional software piracy behaviour scale. The SRMSR and CFI goodness-of-fit indices suggested that the confirmatory factor analysis models for both the original and the trimmed scales for software piracy behaviour as a uni-dimensional construct fit the data well with the model representing the trimmed software piracy behaviour scale offering a better fit (AIC = 23.45) to the data compared to the original software piracy behaviour scale (AIC = 43.33). It was noted in this analysis of the pilot data that multivariate normality in the behaviour scale could not be expected since it was not anticipated that the distribution of software piracy behaviour in the sample would be normal.

6.2.3 Conclusions emanating from the pilot study

The primary objective of the pilot investigation was to construct a robust questionnaire with sound psychometric properties (i.e. scale reliability and construct validity) to measure moral disengagement, self-efficacy, intention and behaviour in the main longitudinal investigation. The item analyses yielded potentially problematic items in the scales for each construct and the deletion of these items contributed to the robustness of each scale in terms of overall reliability (measured using Cronbach's coefficient alpha and standardised factor loadings and error variances from confirmatory factor analyses to yield construct reliability estimates) and validity (evidence of convergent validity for the social cognitive constructs suggested that the items in each scale reflected the actual latent constructs they were envisaged to load onto). Thus, on the basis of the results of the pilot investigation, potentially problematic items were eliminated from the moral disengagement, self-efficacy, intention and behaviour scales. The resultant scales demonstrated suitable psychometric properties for inclusion in the main longitudinal study.

6.3 The main longitudinal study

The aims of the main longitudinal investigation were two-fold. The first was to explore the factor structure of moral disengagement and to understand if this structure remained invariant in the context of a longitudinal research design. In addition to the exploration of the factor structure of moral disengagement, self-efficacy, intention and behaviour were also examined to confirm their psychometric robustness and to establish their longitudinal measurement invariance. The examination of the ancillary social cognitive constructs' psychometric properties and the stability of their measurement over time in the context of the longitudinal study was important because these were critical pre-requisites for drawing meaningful conclusions with a fair degree of confidence about their relationships with moral disengagement and their relationships with each other in the context of fulfilling the second research objective. The second objective was to explore moral disengagement's temporal position in a structural model of social cognitive theory relative to the other social cognitive constructs (in this study proficiency-based self-efficacy, intention and behaviour were included) and to understand the temporal positions of the three additional social cognitive constructs relative to each other in a structural model of social cognitive theory for explaining antisocial behaviour.

6.3.1 Research questions on the dimensionality of moral disengagement

Originally, this study was designed to investigate the dimensionality of moral disengagement from the perspective of three conceptualisations of the construct; one that was derived from the theory and two which emerged from empirical research of the moral disengagement construct. The first conceptualisation was grounded in Bandura's (1986) presentation of the construct in social cognitive theory in which moral disengagement was portrayed as a four-dimensional variable based on the four points in the self-regulation process at which the eight moral disengagement mechanisms were likely to be activated. The second conceptualisation this study was designed to test was of moral disengagement as a uni-dimensional construct in which all the items that represented the scale were envisaged to load onto a single underlying factor. Support for this interpretation of moral disengagement as a single-factor construct was found in the empirical research (Bandura et al., 1996a; 2001b; Caprara et al., 2009; Hymel et al., 2005; Moore et al., 2012). The third construal of moral disengagement this study was designed to test was of moral disengagement as a two-dimensional construct based on the locus of responsibility interpretation which was hinted at, but not formally tested, in previous empirical research (Hymel et al., 2005; Jackson & Sparr, 2005). In this conceptualisation, moral disengagement appeared to split into two factors: one that comprised mechanisms individuals used when they implicitly accepted blame for their injurious conduct and tried to cognitively reconstrue it or minimise its consequences in order to render their conduct more acceptable to themselves (internal locus of responsibility) and the other which comprised of mechanisms individuals used when they projected blame for their detrimental behaviour onto external parties, institutions and factors in the external environment in their quest to distance themselves from responsibility for their egregious behaviour (external locus of responsibility). Thus, the main longitudinal investigation set out to test whether any of these three conceptualisations of moral disengagement (derived from the theoretical and empirical literature) offered a meaningful way to understand its dimensionality in the empirical domain. The specific research questions the main longitudinal study aimed to answer were:

- **Research question 1.1**: *What is the most optimal structure for the moral disengagement construct?*
- **Research question 1.2**: *Is the structure of moral disengagement invariant over time?*

Table 6.10: Simple descriptive statistics for moral disengagement, self-efficacy, intention and behaviour at Time 1 and Time 2

Moral disengagement		TIME 1								TIME 2							
		Original MD item				Transformed MD item				Original MD item				Transformed MD item			
	Variable	Mean	SD	Skewness	Kurtosis	Mean	SD	Skewness	Kurtosis	Mean	SD	Skewness	Kurtosis	Mean	SD	Skewness	Kurtosis
1	MD_MJ1	2.84	1.31	-0.11	-1.42	1.63	0.42	-0.34	-1.33	2.75	1.24	0.04	-1.31	1.61	0.39	-0.23	-1.23
2	MD_MJ2	2.39	1.20	0.46	-0.85	1.50	0.39	0.13	-1.15	2.29	1.10	0.49	-0.67	1.47	0.37	0.14	-1.06
3	MD_EL1	2.15	1.14	0.74	-0.39	1.42	0.38	0.39	-0.99	2.10	0.98	0.59	-0.49	1.41	0.34	0.23	-0.95
4	MD_EL2	1.90	0.96	0.90	-0.10	1.15	0.14	0.41	-0.99	1.96	0.93	0.94	0.50	1.16	0.14	0.29	-0.80
5	MD_EL3	1.81	0.93	1.00	0.09	1.13	0.14	0.53	-0.95	1.84	0.86	0.90	0.46	1.14	0.13	0.32	-0.96
6	MD_AC1	2.20	1.23	0.69	-0.85	1.18	0.17	0.29	-1.28	2.25	1.16	0.65	-0.75	1.19	0.16	0.18	-1.15
7	MD_DISP1	2.60	1.32	0.42	-1.05	1.56	0.41	0.11	-1.19	2.54	1.20	0.35	-1.06	1.55	0.39	0.04	-1.15
8	MD_DISP2	1.71	0.79	1.25	1.99	1.12	0.12	0.50	-0.50	1.72	0.76	1.14	1.94	1.13	0.12	0.39	-0.60
9	MD_DIFF1	1.72	0.81	1.08	0.79	1.12	0.13	0.50	-0.78	1.81	0.83	1.01	1.00	1.14	0.13	0.34	-0.76
10	MD_DIFF2	2.60	1.21	0.32	-0.89	1.57	0.38	-0.03	-1.03	2.60	1.16	0.29	-0.96	1.57	0.37	-0.06	-1.01
11	MD_DOC1	2.53	1.16	0.26	-1.01	1.54	0.38	-0.06	-1.12	2.42	1.13	0.36	-0.94	1.51	0.37	0.03	-1.11
12	MD_DOC2	1.90	0.85	0.64	-0.31	1.34	0.30	0.30	-0.93	1.83	0.80	0.79	0.54	1.32	0.29	0.36	-0.64
13	MD_DOC3	2.25	1.03	0.42	-0.83	1.20	0.14	-0.08	-1.12	2.10	0.95	0.65	-0.25	1.18	0.14	0.06	-0.93
14	MD_AOB1	3.43	1.29	-0.47	-0.91	1.71	0.65	-0.47	-0.91	3.25	1.26	-0.31	-0.94	1.62	0.63	-0.31	-0.94
15	MD_DEH1	2.52	1.22	0.44	-0.72	1.54	0.39	0.06	-1.01	2.51	1.12	0.35	-0.66	1.54	0.36	-0.05	-0.90
16	MD_DEH2	2.39	1.12	0.53	-0.42	1.50	0.37	0.11	-0.86	2.36	1.08	0.51	-0.34	1.49	0.36	0.09	-0.82

Simple descriptive statistics including means, standard deviations, skewness and kurtosis values for moral disengagement at Time 1 and Time 2 in the longitudinal study are presented in Table 6.10. The primary statistical technique used to assess the dimensionality of the social cognitive constructs was confirmatory factor analysis, an influential member of the structural equation modelling family of statistical techniques. One of the main assumptions of maximum likelihood estimation, the estimation technique leveraged in the confirmatory factor analyses and subsequent path analyses in this investigation, is that the data are multivariate normal. It was noted in the pilot study that univariate normality is a necessary but not sufficient condition for multivariate normality (Hair et al., 2010) and the simple descriptive statistics were instrumental in establishing the extent to which the data collected in this study were univariate normal. Although all the moral disengagement items appeared to possess skewness and kurtosis values that fell into the acceptable range of -2.00 to +2.00 for univariate normality, a test of the normalised multivariate kurtosis (NMK) values for this set of items revealed a more acceptable level of multivariate normality when they were transformed (Time 1: NMK = 11.00; Time 2: NMK = 15.28) than when they were not (Time 1: NMK = 14.59; Time 2: NMK = 20.06). These data were intended for use in structural equation modelling applications in order to investigate moral disengagement's dimensionality and its likely temporal position in a structural model of social cognitive theory. The author noted earlier that structural equation modelling is sensitive to variables with high levels of multivariate kurtosis, in particular, and insists on acceptable levels of multivariate normality. Therefore, in the interests of striving for multivariate normality, transformations were performed to optimise the full set of moral disengagement items for normality. In this study square root, exponentiation (to the power of 0.25) and log (to the base 10) transformations were used. The transformations yielded variables that fell into an acceptable range for univariate normality and which possessed a higher level of multivariate normality than when they were not transformed. The transformed moral disengagement variables were carried forward into the subsequent structural equation modelling statistical analyses.

The results of correlation analyses conducted on the moral disengagement items at Time 1 and Time 2 are depicted in Table 6.11. To facilitate the comparison of correlations across time white and grey bands were used. Correlation coefficients in the white bands captured intercorrelations between items at Time 1 while the grey bands contained the coefficients for corresponding items at Time 2. The correlation analysis was important since it constituted the first step towards assessing the extent to which the items in the moral disengagement scale belonged together. Only 3% of the intercorrelations between the items at Time 1 and less than 1% at Time 2 were $r \leq 0.30$

Table 6.11: Inter-item correlation analyses of moral disengagement at Time 1 and Time 2

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	MD_MJ1	1.00															
		1.00															
2	MD_MJ2	.55***	1.00														
		.44***	1.00														
3	MD_EL1	.52***	.50***	1.00													
		.42***	.61***	1.00													
4	MD_EL2	.56***	.55***	.49***	1.00												
		.46***	.59***	.62***	1.00												
5	MD_EL3	.45***	.52***	.48***	.60***	1.00											
		.37***	.54***	.47***	.56***	1.00											
6	MD_AC1	.63***	.56***	.48***	.60***	.57***	1.00										
		.62***	.55***	.52***	.58***	.52***	1.00										
7	MD_DISP1	.44***	.37***	.36***	.37***	.34***	.45***	1.00									
		.45***	.44***	.48***	.48***	.33***	.51***	1.00									
8	MD_DISP2	.39***	.43***	.50***	.54***	.57***	.44***	.53***	1.00								
		.43***	.54***	.58***	.63***	.55***	.56***	.50***	1.00								
9	MD_DIFF1	.47***	.58***	.56***	.64***	.61***	.60***	.51***	.69***	1.00							
		.48***	.57***	.63***	.63***	.52***	.60***	.61***	.77***	1.00							
10	MD_DIFF2	.32***	.36***	.40***	.37***	.38***	.35***	.39***	.48***	.39***	1.00						
		.36***	.47***	.38***	.42***	.25***	.44***	.37***	.46***	.45***	1.00						
11	MD_DOC1	.48***	.45***	.37***	.48***	.51***	.61***	.33***	.42***	.49***	.33***	1.00					
		.49***	.51***	.52***	.61***	.35***	.61***	.43***	.54***	.56***	.47***	1.00					
12	MD_DOC2	.42***	.48***	.47***	.55***	.50***	.53***	.34***	.49***	.57***	.33***	.57***	1.00				
		.42***	.61***	.65***	.62***	.56***	.50***	.37***	.61***	.61***	.43***	.60***	1.00				
13	MD_DOC3	.59***	.58***	.54***	.67***	.55***	.64***	.41***	.53***	.61***	.44***	.58***	.57***	1.00			
		.63***	.68***	.59***	.65***	.54***	.77***	.52***	.64***	.64***	.49***	.69***	.69***	1.00			
14	MD_AOB1	.46***	.46***	.41***	.33***	.33***	.43***	.38***	.32***	.36***	.28***	.44***	.35***	.48***	1.00		
		.48***	.45***	.45***	.42***	.41***	.48***	.41***	.44***	.49***	.48***	.46***	.48***	.57***	1.00		
15	MD_DEH1	.35***	.45***	.45***	.40***	.40***	.35***	.31***	.38***	.42***	.28***	.40***	.45***	.52***	.62***	1.00	
		.34***	.42***	.46***	.46***	.30***	.42***	.37***	.47***	.47***	.47***	.44***	.46***	.49***	.63***	1.00	
16	MD_DEH2	.36***	.47***	.47***	.42***	.42***	.33***	.29***	.41***	.44***	.28***	.40***	.49***	.53***	.61***	.91***	1.00
		.33***	.45***	.47***	.48***	.33***	.41***	.38***	.48***	.51***	.47***	.41***	.51***	.50***	.65***	.90***	1.00

Note: All correlation coefficients in white bands pertain to relationships between moral disengagement items at Time 1 while correlation coefficients in grey bands pertain to relationships between moral disengagement items at Time 2.
* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$

while less than 1% at both Time 1 and Time 2 were r ≥ 0.80. This suggested that there were very few weak associations among the moral disengagement items and a very small percentage of them were highly correlated with each other. This pointed to the homogeneity of the scale and the absence of multicollinearity offering preliminary evidence that, generally, the items in the scale cohered.

Due to the incompleteness of the moral disengagement scale in the pilot study it was not possible to conduct a full principal components exploratory factor analysis to understand the underlying structure of the scale. The longitudinal study made this possible for the first time. All the intercorrelations between the moral disengagement items at Time 1 and Time 2 were significant at the $p < 0.001$ level and a small percentage (3% at Time 1; < 1% at Time 2) of correlation coefficients fell into the $0.25 \leq r \leq 0.30$ range which suggested that the use of principal components exploratory factor analysis on this scale was appropriate (Hair et al., 2010). The results of the exploratory factor analyses for moral disengagement as a one, two (based on the locus of responsibility interpretation) and four-factor construct are presented in Table 6.12. The number of factors to be extracted in the exploratory factor analyses was guided by the original conceptualisations of moral disengagement that the main longitudinal investigation set out to test.

Table 6.12: Principal components exploratory factor analysis of moral disengagement as a 1, 2 and 4-factor solution at Time 1 and Time 2

		1-factor MD		**2-factor MD**				**4-factor MD**							
		Time 1	**Time 2**	**Time 1**		**Time 2**		**Time 1**				**Time 2**			
		F1	**F1**	**F1**	**F2**	**F1**	**F2**	**F1**	**F2**	**F3**	**F4**	**F1**	**F2**	**F3**	**F4**
1	MD_MJ1	**0.71**	**0.65**	**0.67**	0.27	**0.64**	0.21	0.27	0.15	**0.78**	0.24	0.19	0.15	**0.81**	0.18
2	MD_MJ2	**0.74**	**0.76**	**0.64**	0.37	**0.72**	0.29	**0.46**	0.29	**0.49**	0.21	**0.64**	0.25	0.35	0.19
3	MD_EL1	**0.71**	**0.76**	**0.60**	0.38	**0.70**	0.32	**0.41**	0.33	0.30	0.38	**0.63**	0.27	0.18	0.38
4	MD_EL2	**0.77**	**0.79**	**0.76**	0.22	**0.75**	0.29	**0.71**	0.14	0.34	0.21	**0.65**	0.23	0.28	0.35
5	MD_EL3	**0.73**	**0.65**	**0.72**	0.22	**0.70**	0.10	**0.73**	0.16	0.20	0.24	**0.80**	0.09	0.21	0.01
6	MD_AC1	**0.76**	**0.78**	**0.78**	0.19	**0.77**	0.24	**0.52**	0.07	**0.68**	0.19	0.40	0.17	**0.71**	0.26
7	MD_DISP1	**0.59**	**0.65**	**0.60**	0.16	**0.59**	0.28	0.07	0.13	0.38	**0.75**	0.14	0.18	0.32	**0.80**
8	MD_DISP2	**0.72**	**0.79**	**0.73**	0.19	**0.73**	0.32	**0.57**	0.18	0.01	**0.65**	**0.60**	0.25	0.19	**0.53**
9	MD_DIFF1	**0.80**	**0.82**	**0.80**	0.23	**0.75**	0.34	**0.67**	0.17	0.21	**0.45**	**0.54**	0.26	0.24	**0.62**
10	MD_DIFF2	**0.55**	**0.62**	**0.57**	0.12	0.38	**0.55**	0.25	0.12	0.10	**0.70**	0.12	**0.50**	0.38	0.32
11	MD_DOC1	**0.70**	**0.74**	**0.62**	0.32	**0.67**	0.33	**0.54**	0.22	**0.48**	0.05	0.39	0.26	**0.56**	0.27
12	MD_DOC2	**0.72**	**0.78**	**0.63**	0.35	**0.71**	0.34	**0.70**	0.29	0.20	0.12	**0.74**	0.31	0.26	0.14
13	MD_DOC3	**0.82**	**0.87**	**0.72**	0.41	**0.81**	0.34	**0.57**	0.32	0.46	0.25	**0.54**	0.28	**0.64**	0.23
14	MD_AOB1	**0.63**	**0.70**	0.29	**0.74**	0.37	**0.71**	0.02	**0.68**	0.51	0.20	0.23	**0.68**	0.42	0.08
15	MD_DEH1	**0.67**	**0.68**	0.23	**0.92**	0.23	**0.91**	0.27	**0.90**	0.12	0.14	0.22	**0.89**	0.12	0.17
16	MD_DEH2	**0.68**	**0.70**	0.25	**0.91**	0.25	**0.91**	0.32	**0.89**	0.07	0.13	0.27	**0.89**	0.09	0.17

When the number of factors to be extracted was not specified, the principal components exploratory factor analysis for moral disengagement at Time 1 and Time 2 supported a viable two-factor construct consistent with the object of dissociation interpretation introduced earlier in the results section of the pilot study in which the items seemed to split into two factors on the basis of whether or not the victims were present as the objects of dissociation in the justifications individuals used to distance themselves from their injurious behaviour and its negative

consequences. According to this interpretation of moral disengagement, items from the moral justification, euphemistic labelling, advantageous comparison, displacement of responsibility, diffusion of responsibility and distortion of consequences mechanisms clustered together to form the first factor (characterised by the absence of the victim as the object of dissociation) while items from the attribution of blame and dehumanisation mechanisms clustered together to form the second factor (characterised by the presence of the victim as the object of dissociation). A graphic representation of the unique factor structure of this interpretation of moral disengagement is presented in Figure 6.1. This unique conceptualisation of the moral disengagement construct was added to the other interpretations introduced in the Research Questions chapter for exploration in the confirmatory factor analysis to comment on its likely dimensionality in the main longitudinal investigation. The two-factor solution based on the locus of responsibility interpretation was not supported in the exploratory factor analysis and neither was the four-factor solution based on the four points in the self-regulation process at which Bandura (1986) envisaged moral disengagement was activated.

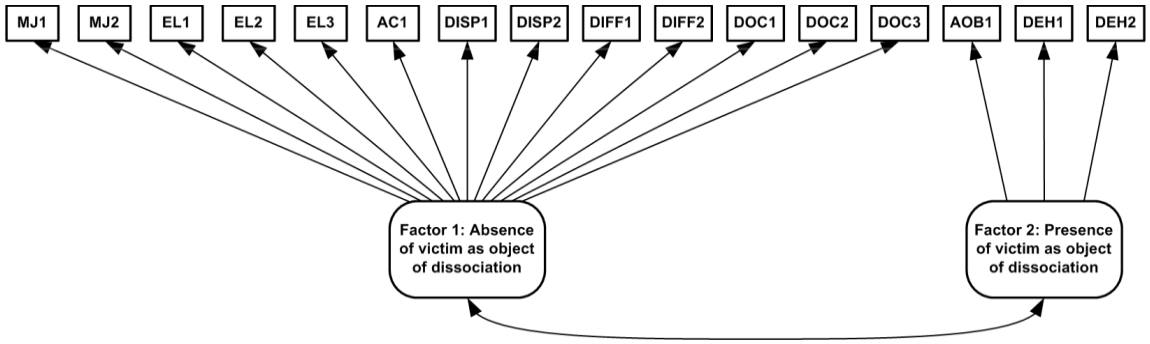


Figure 6.1: Factor structure of moral disengagement as a two-dimensional construct based on the object of dissociation interpretation

Instead, the results of the principal components exploratory factor analysis for moral disengagement, in which the number of factors to be extracted in the solution was set to four, yielded an alternate three-factor conceptualisation of the construct that combined the locus of responsibility and object of dissociation interpretations. Preliminary support for this solution was first noted in the pilot study and since it featured again in the main longitudinal investigation, the author undertook to analyse this interpretation as part of the quest to understand what the most optimal factor structure for moral disengagement was likely to be. In the three-factor solution the internal locus of responsibility factor was identical to the one defined for the two-factor solution. It accommodated the mechanisms of moral disengagement at the point of the behaviour and the point of its consequences. While the absence of the victim as the object of dissociation was

characteristic of all the mechanisms of moral disengagement in the internal locus of responsibility domain, the mechanisms in the external locus of responsibility domain split into two independent factors based on the presence and absence of the victim as the object of dissociation. The first of these comprised the mechanisms of moral disengagement that blamed reprehensible behaviour on external factors (displacement of responsibility; diffusion of responsibility) in which the victim was absent as the object of dissociation while the second consisted of mechanisms that regarded the victims of reprehensible behaviour as deserving of the negative outcomes they suffered (attribution of blame; dehumanisation) in which the victim was the object of the dissociation. The factor structure underlying the conceptualisation of moral disengagement as a three-dimensional construct is presented in Figure 6.2 below. This unique conceptualisation of moral disengagement as a possible three-factor solution will also be tested in the context of the confirmatory factor analysis (together with interpretations of moral disengagement as a four-factor construct, a uni-dimensional construct, a two-dimensional construct based on the locus of responsibility interpretation introduced in the Research Questions chapter and the novel interpretation of moral disengagement as a two-dimensional construct based on the object of dissociation interpretation presented above) to comment on its dimensionality.

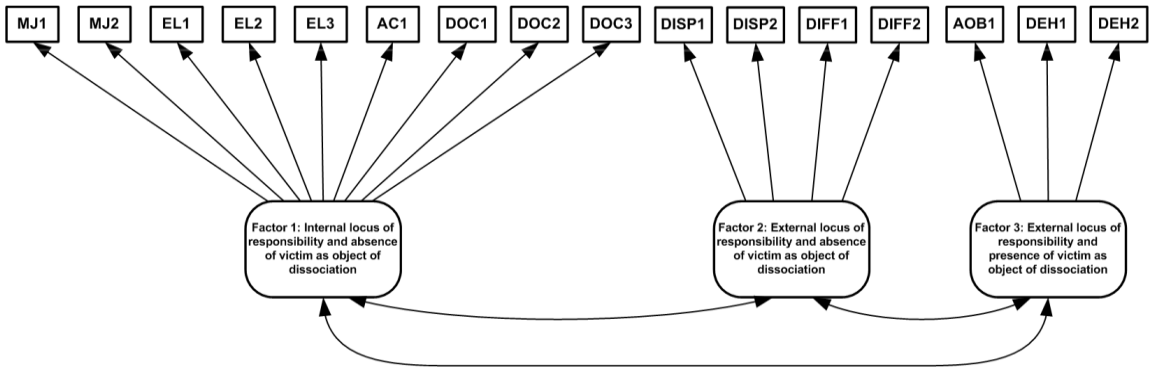


Figure 6.2: Factor structure of moral disengagement as a three-dimensional construct based on a combination of the locus of responsibility and the object of dissociation interpretations

Internal consistency reliability analyses of the one, two (based on the locus of responsibility and the object of dissociation interpretations) and four-dimensional conceptualisations of moral disengagement explored in this study are presented in Table 6.13 (internal consistency reliability results for moral disengagement as a three-dimensional construct are presented separately later). The main aim of this analysis was to establish whether the items in each conceptualisation of the scale were measuring the same construct (Hair et al., 2010) and the extent to which they belonged together. The scale reliability for all scales (except the scale tapping into moral disengagement at

Table 6.13: Internal consistency reliability of moral disengagement as a 1, 2 and 4 factor construct at Time 1 and Time 2

		MD as a 1-factor construct				MD as a 2-factor construct^{OOD}				MD as a 2-factor construct^{LOR}				MD as a 4-factor construct			
		Correlation with total	Cronbach coefficient alpha with deleted variable	Correlation with total	Cronbach coefficient alpha with deleted variable	Correlation with total	Cronbach coefficient alpha with deleted variable	Correlation with total	Cronbach coefficient alpha with deleted variable	Correlation with total	Cronbach coefficient alpha with deleted variable	Correlation with total	Cronbach coefficient alpha with deleted variable	Correlation with total	Cronbach coefficient alpha with deleted variable	Correlation with total	Cronbach coefficient alpha with deleted variable
		Time 1		Time 2		Time 1		Time 2		Time 1		Time 2		Time 1		Time 2	
1	MD_MJ1	0.65	0.89	0.59	0.91	0.67	0.87	0.60	0.90	0.67	0.85	0.59	0.88	0.68	0.77	0.56	0.80
2	MD_MJ2	0.68	0.89	0.69	0.90	0.67	0.87	0.71	0.89	0.67	0.85	0.71	0.86	0.67	0.77	0.68	0.75
3	MD_EL1	0.65	0.89	0.69	0.90	0.64	0.87	0.71	0.89	0.62	0.86	0.70	0.86	0.61	0.78	0.66	0.76
4	MD_EL2	0.67	0.89	0.72	0.91	0.71	0.88	0.75	0.89	0.72	0.86	0.75	0.87	0.68	0.79	0.71	0.78
5	MD_EL3	0.64	0.89	0.56	0.91	0.67	0.88	0.58	0.90	0.66	0.86	0.60	0.88	0.63	0.80	0.60	0.79
6	MD_AC1	0.70	0.89	0.72	0.91	0.74	0.87	0.75	0.89	0.75	0.85	0.74	0.87	0.71	0.78	0.72	0.77
7	MD_DISP1	0.53	0.89	0.58	0.91	0.54	0.88	0.59	0.90	0.48	0.76	0.51	0.81	0.52	0.56	0.53	0.58
8	MD_DISP2	0.64	0.90	0.71	0.91	0.67	0.88	0.73	0.90	0.58	0.78	0.62	0.82	0.66	0.59	0.64	0.61
9	MD_DIFF1	0.71	0.89	0.76	0.91	0.75	0.88	0.77	0.89	0.41	0.78	0.67	0.82	0.60	0.60	0.70	0.59
10	MD_DIFF2	0.48	0.90	0.59	0.91	0.50	0.88	0.55	0.90	0.62	0.77	0.57	0.80	0.47	0.58	0.46	0.63
11	MD_DOC1	0.63	0.89	0.68	0.90	0.62	0.87	0.70	0.89	0.63	0.85	0.69	0.87	0.63	0.61	0.68	0.69
12	MD_DOC2	0.64	0.89	0.72	0.90	0.64	0.87	0.72	0.89	0.65	0.85	0.74	0.86	0.62	0.56	0.67	0.62
13	MD_DOC3	0.77	0.89	0.82	0.91	0.77	0.88	0.84	0.89	0.77	0.86	0.85	0.87	0.65	0.71	0.77	0.74
14	MD_AOB1	0.62	0.90	0.68	0.91	0.63	0.95	0.65	0.95	0.62	0.76	0.69	0.81	0.63	0.95	0.65	0.95
15	MD_DEH1	0.67	0.89	0.68	0.90	0.80	0.68	0.80	0.71	0.72	0.71	0.75	0.77	0.80	0.68	0.80	0.71
16	MD_DEH2	0.67	0.89	0.69	0.90	0.79	0.71	0.81	0.70	0.71	0.72	0.77	0.77	0.79	0.71	0.81	0.70

	MD as a 1-factor construct				MD as a 2-factor construct^{OOD}				MD as a 2-factor construct^{LOC}				MD as a 4-factor construct			
	Time 1		Time 2		Time 1		Time 2		Time 1		Time 2		Time 1		Time 2	
Scale reliability	^{F1}1-16	α = 0.90	^{F1}1-16	α = 0.91	^{F1}1-13	α = 0.88	^{F1}1-13	α = 0.90	^{F1}1-6 & 11-13	α = 0.87	^{F1}1-6 & 11-13	α = 0.88	^{F1}1-6	α = 0.81	^{F1}1-6	α = 0.81
					^{F2}14-16	α = 0.83	^{F2}14-16	α = 0.83	^{F2}7-10 & 14-16	α = 0.78	^{F2}7-10 & 14-16	α = 0.82	^{F2}7-10	α = 0.65	^{F2}7-10	α = 0.67
													^{F3}11-13	α = 0.73	^{F3}11-13	α = 0.77
													^{F4}14-16	α = 0.83	^{F4}14-16	α = 0.83

Note:

MD as a 2-factor construct^{OOD} refers to a two-dimensional interpretation of moral disengagement based on the object of dissociation interpretation
(Factor 1: moral justification, euphemistic labelling, advantageous comparison, displacement of responsibility, diffusion of responsibility, distortion of consequences; Factor 2: attribution of blame, dehumanisation)

MD as a 2-factor construct^{LOR} refers to a two-dimensional interpretation of moral disengagement based on the locus of responsibility interpretation
(Factor 1: moral justification, euphemistic labelling, advantageous comparison, distortion of consequences; Factor 2: displacement of responsibility, diffusion of responsibility, attribution of blame, dehumanisation)

the point between behaviour and its consequences in the four-factor solution) across the four conceptualisations exceeded the generally accepted lower limit for scale reliability of $\alpha \geq 0.70$ (Hair et al., 2010). The scale consisting of items loading onto the displacement and diffusion of responsibility mechanisms of moral disengagement consistently had lower internal consistency reliability but this always exceeded $\alpha \geq 0.60$ which was deemed admissible in this study due to its exploratory nature (Hair et al., 2010). In the one, two (based on the locus of responsibility interpretation) and four-factor solutions various items from the displacement and diffusion of responsibility mechanisms did not seem to correlate very well with the scale overall in terms of the recommended acceptable minimum of 0.50 for item-to-total correlations (Hair et al., 2010). Despite not meeting this minimum cut-off all item-to-total correlations were greater than 0.40. Due to the relaxed overall reliability allowed for this sub-scale the acceptable minimum for item-to-total correlations was also relaxed and values greater than 0.40 were deemed acceptable for the purposes of this exploratory investigation. Interestingly, the only conceptualisation of moral disengagement in which all the item-to-total correlations were greater than 0.50 was for the two-factor solution based on the object of dissociation interpretation. However, in this solution and in the conceptualisations of moral disengagement as a three and four-factor construct, AOB1, the item loading onto the attribution of blame mechanism consistently surfaced as problematic since its deletion marked an increase in the reliability of the moral disengagement at the point of the victim scale. Notwithstanding the potential for AOB1 to be a potentially problematic item, it was retained in the analysis as the only item representing the attribution of blame mechanism of moral disengagement at the point of the victim after a qualitative review suggested that it adequately captured the mechanism it was intended to tap into. Despite aspects of internal consistency reliability in each conceptualisation of moral disengagement not being ideal, for the purposes of this investigation, overall the internal consistency reliabilities for each interpretation were deemed acceptable suggesting coherence in the items measuring various facets of the construct in each conceptualisation.

The internal consistency reliability results and the principal components exploratory factor analysis results for moral disengagement as a three-factor construct, based on a combination of the locus of responsibility and object of dissociation interpretations, are presented in Table 6.14. The internal consistency reliability of the proposed sub-scales in this conceptualisation of moral disengagement appeared acceptable. The reliabilities of the scales depicting an internal locus of responsibility in which the victim was absent as the object of dissociation in the rationalisations used and an external locus of responsibility in which the victim was present as the object of

dissociation in the rationalisations individuals used exceeded $\alpha > 0.80$. The internal consistency reliability of the scale depicting an external locus of responsibility in which the victim was absent as the object of dissociation in the rationalisations used exceeded the lower lenient acceptable limit for exploratory research of $\alpha > 0.60$ (Hair et al., 2010). These internal consistency reliability results suggested that the items in each of the three sub-scales cohered sufficiently and were essentially measuring the same sub-constructs which justified the further examination of this unique conceptualisation of moral disengagement.

Table 6.14: Internal consistency reliability analysis and principal components exploratory factor analysis for moral disengagement as a 3-factor construct

		Internal consistency reliability				**Principal components exploratory factor analysis**					
		Correlation with total	**Cronbach coefficient alpha with deleted variable**	**Correlation with total**	**Cronbach coefficient alpha with deleted variable**	**Factor 1**	**Factor 2**	**Factor 3**	**Factor 1**	**Factor 2**	**Factor 3**
		Time 1		**Time 2**		**Time 1**			**Time 2**		
1	MD_MJ1	0.67	0.85	0.59	0.88	**0.73**	0.18	0.20	0.20	**0.80**	0.14
2	MD_MJ2	0.67	0.85	0.71	0.86	**0.63**	0.26	0.32	**0.65**	0.36	0.24
3	MD_EL1	0.62	0.86	0.70	0.86	**0.44**	**0.44**	0.35	**0.70**	0.27	0.28
4	MD_EL2	0.72	0.86	0.75	0.87	**0.69**	0.37	0.16	**0.70**	0.36	0.24
5	MD_EL3	0.66	0.86	0.60	0.88	**0.60**	0.43	0.17	**0.77**	0.16	0.07
6	MD_AC1	0.75	0.85	0.74	0.87	**0.82**	0.23	0.11	0.43	**0.73**	0.17
7	MD_DISP1	0.52	0.56	0.53	0.58	0.25	**0.66**	0.15	0.32	**0.58**	0.23
8	MD_DISP2	0.66	0.59	0.64	0.61	0.31	**0.79**	0.18	**0.70**	0.33	0.27
9	MD_DIFF1	0.60	0.60	0.70	0.59	**0.55**	**0.60**	0.19	**0.66**	0.42	0.29
10	MD_DIFF2	0.47	0.58	0.46	0.63	0.17	**0.72**	0.13	0.18	0.46	**0.51**
11	MD_DOC1	0.63	0.85	0.69	0.87	**0.70**	0.15	0.25	0.42	**0.60**	0.27
12	MD_DOC2	0.65	0.85	0.74	0.86	**0.59**	0.31	0.30	**0.74**	0.25	0.30
13	MD_DOC3	0.77	0.86	0.85	0.87	**0.68**	0.34	0.35	**0.55**	**0.65**	0.27
14	MD_AOB1	0.63	0.95	0.65	0.95	0.34	0.11	**0.71**	0.23	0.40	**0.67**
15	MD_DEH1	0.80	0.68	0.80	0.71	0.21	0.20	**0.90**	0.25	0.15	**0.89**
16	MD_DEH2	0.79	0.71	0.81	0.70	0.21	0.22	**0.90**	0.30	0.12	**0.89**
MD as a 3-factor construct											
		Time 1		**Time 2**							
Scale reliability		^{F1}1-6 & 11-13	$\alpha = 0.87$	^{F1}1-6 & 11-13	$\alpha = 0.88$						
		^{F2}7-10	$\alpha = 0.65$	^{F2}7-10	$\alpha = 0.67$						
		^{F3}14-16	$\alpha = 0.83$	^{F3}14-16	$\alpha = 0.83$						

The principal components exploratory factor analysis supported the possibility that the moral disengagement construct could possess a three-factor structure. This seemed more evident at Time 1 than at Time 2. At Time 1 there were three clear aggregates of items corresponding to the proposed three-dimensional structure. At Time 2, while the aggregation of items was not as clear-cut as it was at Time 1, similar (though not identical) trends were observed. The items loading onto moral disengagement at the point of the victim (external locus of responsibility; presence of the victim as the object of dissociation) clearly constituted an independent factor. The items loading onto moral disengagement at the point of the behaviour and the point of the consequences

of behaviour (internal locus of responsibility; absence of the victim as the object of dissociation) tended to cluster together to form a second factor. However, the items loading onto the mechanisms between behaviour and its consequences (external locus of responsibility; absence of the victim as the object of dissociation) did not fall neatly into a single factor. Instead, an item loading onto diffusion of responsibility (DIFF2) seemed to gravitate towards the factor representing moral disengagement at the point of the victim while two other items, one from the displacement of responsibility mechanism (DISP2) and the other from the diffusion of responsibility mechanism (DIFF1), gravitated towards the scale depicting moral disengagement at the point of the behaviour (internal locus of responsibility; absence of the victim as the object of dissociation). One item from the displacement of responsibility mechanism of moral disengagement (DISP1) loaded on an independent factor together with some items from moral disengagement at the point of behaviour (MJ1; AC1) and from moral disengagement at the point of the consequences of reprehensible behaviour (DOC1; DOC3). Effectively, therefore, at Time 2 the items from the mechanisms of moral disengagement at the point between behaviour and its consequences, instead of clustering together as an independent factor, dispersed to load onto moral disengagement at the point of the behaviour, at the point of its consequences, and at the point of the victim. The majority of these items clustered around the mechanisms of moral disengagement implying an internal locus of responsibility in which the victim was absent as the object of dissociation. One item gravitated towards the mechanisms of moral disengagement implying an external locus of responsibility in which the victim was present as the object of dissociation (viz. attribution of blame and dehumanisation). Notwithstanding the discrepancies in the principal components exploratory factor analysis of moral disengagement as a three-factor construct at Time 2, its integrity at Time 1 led to this novel solution being tested next in the confirmatory factor analysis. The unique two-dimensional conceptualisations of moral disengagement based on the object of dissociation interpretation (the only two-factor solution supported by the principal components exploratory factor analysis) and the locus of responsibility interpretation were also tested in the confirmatory factor analysis. Finally, the previously examined empirical notion of moral disengagement as a unitary construct (Bandura et al., 1996a; 2001b) and the theoretical (Bandura, 1986) notion of moral disengagement as a four-dimensional construct were tested in the confirmatory factor analysis. The analysis of these five conceptualisations of moral disengagement was undertaken to establish the most optimal structure of this key social cognitive construct for predicting antisocial behaviour.

6.3.1.1 Research question 1.1: What is the most optimal structure for the moral disengagement construct?

Moral disengagement's operationalisation as a four-factor construct abstracted from the original eight-dimensional conceptualisation in terms of the points in the self-regulation process at which Bandura (1986) envisaged the moral disengagement mechanisms to be selectively activated or disengaged and as a unitary construct represented two ways in which moral disengagement had been previously tested in empirical research. This study introduced three additional conceptualisations of moral disengagement; two conceptualisations of it as a two-factor construct based on the object of dissociation and locus of responsibility interpretations respectively and one as a three-factor construct based on a combination of the locus of responsibility and object of dissociation interpretations. The results of the confirmatory factor analyses for the five conceptualisations of moral disengagement explored in this longitudinal study (viz. as a unitary, a two-factor [based on the object of dissociation and locus of responsibility interpretations], a three-factor [based on a combination of the locus of responsibility and object of dissociation interpretations] and a four-factor construct) are presented in Table 6.15. This analysis sought to identify which conceptualisation was most viable and, consequently, which offered the most meaningful interpretation of moral disengagement when it was operationalised in the empirical research.

Drawing on the results yielded by the confirmatory factor analysis, the author examined each interpretation of moral disengagement included in the analysis to comment on the factor structure that was likely to be most viable for understanding the construct in this study. The comparative review of the five interpretations of moral disengagement explored in this study was divided into three parts and was structured as follows. First, the novel two (based on the object of dissociation and locus of responsibility interpretations) and three-factor conceptualisations of moral disengagement were pitted against each other for insights about which of them was likely to be most viable. Then, the previously researched conceptualisations of moral disengagement as a unitary and four-factor construct were considered in relation to each other to comment on which of them was likely to be most viable. Finally, on the basis of these analyses the most viable novel interpretation of moral disengagement (derived from the first step of this analysis in which the two and three-factor conceptualisations were compared) was compared with the most viable previously researched conceptualisation of moral disengagement (derived from the second step of this analysis in which the four and one-factor conceptualisations of moral disengagement were

Table 6.15: Confirmatory factor analysis of moral disengagement as a 1, 2, 3 and 4-factor solution at Time 1 and Time 2

		MD as a 1-factor construct				MD as a 2-factor construct^{OOD}				MD as a 2-factor construct^{LOR}				MD as a 3-factor construct				MD as a 4-factor construct			
		Time 1		Time 2		Time 1		Time 2		Time 1		Time 2		Time 1		Time 2		Time 1		Time 2	
		R^2	Factor loading	R^2	Factor loading	R^2	Factor loading	R^2	Factor loading	R^2	Factor loading	R^2	Factor loading	R^2	Factor loading	R^2	Factor loading	R^2	Factor loading	R^2	Factor loading
1	MD_MJ1	0.47	0.67	0.40	0.63	0.47	0.69	0.40	0.63	0.50	0.71	0.42	0.65	0.49	0.70	0.41	0.64	0.50	0.71	0.41	0.64
2	MD_MJ2	0.51	0.72	0.55	0.74	0.51	0.71	0.56	0.75	0..52	0.72	0.57	0.76	0.52	0.72	0.57	0.76	0.52	0.72	0.57	0.75
3	MD_EL1	0.46	0.68	0.55	0.74	0.45	0.67	0.55	0.74	0.45	0.67	0.54	0.74	0.45	0.67	0.55	0.74	0.45	0.67	0.55	0.74
4	MD_EL2	0.58	0.76	0.61	0.78	0.60	0.78	0.62	0.79	0.60	0.77	0.61	0.78	0.61	0.78	0.61	0.78	0.62	0.79	0.62	0.78
5	MD_EL3	0.52	0.72	0.40	0.63	0.53	0.73	0.41	0.64	0.52	0.72	0.41	0.64	0.53	0.73	0.41	0.64	0.53	0.73	0.42	0.65
6	MD_AC1	0.57	0.75	0.59	0.77	0.59	0.77	0.60	0.78	0.60	0.78	0.62	0.79	0.60	0.78	0.62	0.79	0.62	0.78	0.62	0.79
7	MD_DISP1	0.31	0.56	0.39	0.62	0.31	0.56	0.39	0.62	0.34	0.58	0.40	0.63	0.38	0.62	0.43	0.65	0.38	0.62	0.43	0.66
8	MD_DISP2	0.48	0.70	0.60	0.78	0.50	0.70	0.61	0.78	0.52	0.72	0.62	0.79	0.63	0.80	0.72	0.85	0.63	0.79	0.71	0.84
9	MD_DIFF1	0.62	0.79	0.65	0.80	0.64	0.80	0.65	0.81	0.61	0.78	0.67	0.82	0.75	0.86	0.79	0.89	0.75	0.87	0.79	0.89
10	MD_DIFF2	0.27	0.52	0.34	0.58	0.27	0.52	0.32	0.57	0.27	0.52	0.37	0.61	0.29	0.54	0.32	0.57	0.29	0.54	0.32	0.56
11	MD_DOC1	0.46	0.67	0.54	0.73	0.45	0.67	0.54	0.73	0.47	0.69	0.55	0.74	0.47	0.68	0.55	0.74	0.48	0.70	0.56	0.75
12	MD_DOC2	0.49	0.70	0.60	0.77	0.49	0.70	0.60	0.78	0.49	0.70	0.61	0.78	0.49	0.70	0.61	0.78	0.51	0.72	0.62	0.79
13	MD_DOC3	0.67	0.82	0.75	0.87	0.66	0.81	0.75	0.87	0.68	0.83	0.79	0.89	0.68	0.82	0.78	0.88	0.70	0.84	0.81	0.90
14	MD_AOB1	0.34	0.59	0.43	0.65	0.43	0.65	0.47	0.68	0.39	0.62	0.48	0.70	0.43	0.65	0.46	0.68	0.43	0.65	0.47	0.68
15	MD_DEH1	0.39	0.63	0.40	0.63	0.91	0.96	0.88	0.94	0.49	0.70	0.51	0.72	0.91	0.96	0.88	0.94	0.91	0.95	0.88	0.94
16	MD_DEH2	0.41	0.64	0.42	0.65	0.90	0.95	0.92	0.96	0.50	0.71	0.54	0.73	0.90	0.95	0.92	0.96	0.90	0.95	0.92	0.96
Item-factor linkages		^{F1}Items 1-16				^{F1}Items 1-13 ^{F2}Items 14-16				^{F1}Items 1-6 & 11-13 ^{F2}Items 7-10 & 14-16				^{F1}Items 1-6 & 11-13 ^{F2}Items 7-10 ^{F3}Items 14-16				^{F1}Items 1-6 ^{F2}Items 7-10 ^{F3}Items 11-13 ^{F4}Items 14-16			
Factor correlations						r_{F1F2} = 0.61		r_{F1F2} = 0.64		r_{F1F2} = 0.90		r_{F1F2} = 0.89		r_{F1F2} = 0.87 r_{F1F3} = 0.61 r_{F2F3} = 0.53		r_{F1F2} = 0.88 r_{F1F3} = 0.62 r_{F2F3} = 0.62		r_{F1F2} = 0.88 r_{F1F3} = 0.96 r_{F1F4} = 0.58 r_{F2F3} = 0.84 r_{F2F4} = 0.53 r_{F3F4} = 0.66		r_{F1F2} = 0.90 r_{F1F3} = 0.98 r_{F1F4} = 0.61 r_{F2F3} = 0.85 r_{F2F4} = 0.62 r_{F3F4} = 0.61	
Model fit statistics		$\chi^2_{(104,\ N=201)}$ = 524.47, p<0.0001; SRMSR = 0.07; RMSEA = 0.14 [90% CI = 0.13 – 0.15], CFit < 0.0001; GFI = 0.77; CFI = 0.78; Critical N = 50; AIC=588.47		$\chi^2_{(104,\ N=201)}$ = 545.19, p<0.0001; SRMSR = 0.07; RMSEA = 0.15 [90% CI = 0.13 – 0.16], CFit < 0.0001; GFI = 0.76; CFI = 0.80; Critical N = 48; AIC=609.19		$\chi^2_{(103,\ N=201)}$ = 228.16, p<0.0001; SRMSR = 0.06; RMSEA = 0.08 [90% CI = 0.06 – 0.09], CFit = 0.0006; GFI = 0.87; CFI = 0.94; Critical N = 112; AIC=294.16		$\chi^2_{(103,\ N=201)}$ = 280.87, p<0.0001; SRMSR = 0.06; RMSEA = 0.09 [90% CI = 0.08 – 0.11], CFit < 0.001; GFI = 0.85; CFI = 0.92; Critical N = 91; AIC=346.87		$\chi^2_{(103,\ N=201)}$ = 493.25, p<0.0001; SRMSR = 0.07; RMSEA = 0.14 [90% CI = 0.13 – 0.15], CFit < 0.001; GFI = 0.77; CFI = 0.80; Critical N = 52; AIC=559.25		$\chi^2_{(103,\ N=201)}$ = 488.33, p<0.0001; SRMSR = 0.06; RMSEA = 0.14 [90% CI = 0.12 – 0.15], CFit < 0.001; GFI = 0.77; CFI = 0.83; Critical N = 53; AIC=554.33		$\chi^2_{(101,\ N=201)}$ = 189.68, p<0.0001; SRMSR = 0.05; RMSEA = 0.07 [90% CI = 0.05 – 0.08], CFit = 0.04; GFI = 0.89; CFI = 0.95; Critical N = 133; AIC=259.68		$\chi^2_{(101,\ N=201)}$ = 238.33, p<0.0001; SRMSR = 0.06; RMSEA = 0.08 [90% CI = 0.07 – 0.10], CFit < 0.0001; GFI = 0.86; CFI = 0.94; Critical N = 106; AIC=308.33		$\chi^2_{(98,\ N=201)}$ = 180.64, p<0.0001; SRMSR = 0.05; RMSEA = 0.06 [90% CI = 0.05 – 0.08], CFit = 0.05; GFI = 0.89; CFI = 0.96; Critical N = 136; AIC=256.64		$\chi^2_{(98,\ N=201)}$ = 233.40, p<0.0001; SRMSR = 0.06; RMSEA = 0.08 [90% CI = 0.07 – 0.10], CFit < 0.0001; GFI = 0.86; CFI = 0.94; Critical N = 105; AIC=309.40	

Note: All factor loadings were significant at p<0.001

MD as a 2-factor construct^{OOD} refers to a two-dimensional interpretation of moral disengagement based on the object of dissociation interpretation
(Factor 1: moral justification, euphemistic labelling, advantageous comparison, displacement of responsibility, diffusion of responsibility, distortion of consequences; Factor 2: attribution of blame, dehumanisation)

MD as a 2-factor construct^{LOR} refers to a two-dimensional interpretation of moral disengagement based on the locus of responsibility interpretation
(Factor 1: moral justification, euphemistic labelling, advantageous comparison, distortion of consequences; Factor 2: displacement of responsibility, diffusion of responsibility, attribution of blame, dehumanisation)

the point between behaviour and its consequences in the four-factor solution) across the four conceptualisations exceeded the generally accepted lower limit for scale reliability of $\alpha \geq 0.70$ (Hair et al., 2010). The scale consisting of items loading onto the displacement and diffusion of responsibility mechanisms of moral disengagement consistently had lower internal consistency reliability but this always exceeded $\alpha \geq 0.60$ which was deemed admissible in this study due to its exploratory nature (Hair et al., 2010). In each of the three segments that constituted the comparative analysis, the following factors were considered in an incremental fashion to comment on the most viable interpretation of moral disengagement. First, model fit statistics were reviewed to indicate the extent to which each proposed model of moral disengagement as a one, two, three or four-factor construct, fit the data. On the basis of acceptable to good levels of model fit, the analysis progressed to a consideration of model diagnostics to identify points of strain in the solution. If the criteria of acceptable to good levels of model fit and no points of strain in the solution were both met then the author proceeded to examine the parameter estimates to review the extent to which they made statistical and substantive sense. The final consideration for commenting on the extent to which the factor structure in each solution was viable, was an assessment of the construct validity of each conceptualisation of moral disengagement which included an examination of its convergent validity and discriminant validity.

Table 6.16 presents the decision-rules used for assessing model fit in the context of the confirmatory factor analyses performed in this study together with the fit statistics for each of the five interpretations of moral disengagement tested. The model fit statistics for the novel two and three-factor conceptualisations of moral disengagement across the four main categories of fit indices (viz. absolute fit indices; indices adjusting for model parsimony, comparative or incremental fit indices and predictive fit indices) revealed that the three-factor conceptualisation offered a marginally better fit than the two-factor conceptualisation based on the object of dissociation interpretation. The fit of the two-dimensional conceptualisation of moral disengagement based on the locus of responsibility interpretation was poor on all counts at both measurement points leading to this solution being dropped from further analysis. The model chi-square values for the remaining two (based on the object of dissociation) and three-factor conceptualisations of moral disengagement indicated that the discrepancy between the observed and predicted covariances was statistically significant suggesting a potentially poor fit to the data in both cases. However, due to the limitations of the model chi-square statistic (Kline, 2011, pp. 200-204), other goodness-of-fit indicators were used to assist with the decision of whether or not these models represented a good fit to the data. The standardised root mean square residual

Table 6.16: Decision rules for assessing model fit and fit statistics for five interpretations of moral disengagement tested in the longitudinal study

DECISION RULES FOR ASSESSING MODEL FIT					MODEL FIT INDICES FOR THE FIVE INTERPRETATIONS OF MORAL DISENGAGEMENT EXPLORED IN THIS STUDY									
Category	**Fit index**	**Indicators of good fit**	**Indicators of adequate/mediocre fit**	**Indicators of poor fit**	**MD as a 1-factor construct**		**MD as a 2-factor construct^{OOD}**		**MD as a 2-factor construct^{LOR}**		**MD as a 3-factor construct**		**MD as a 4-factor construct**	
					Time 1	**Time 2**	**Time 1**	**Time 2**	**Time 1**	**Time 2**	**Time 1**	**Time 2**	**Time 1**	**Time 2**
Absolute fit indices	χ^2 statistic	Not statistically significant		Statistically significant	$\chi^2_{(104,\ N=201)} = 524.47$, $p<0.0001$	$\chi^2_{(104,\ N=201)} = 545.19$, $p<0.0001$	$\chi^2_{(103,\ N=201)} = 228.16$, $p<0.0001$	$\chi^2_{(103,\ N=201)} = 280.87$, $p<0.0001$	$\chi^2_{(103,\ N=201)} = 493.25$, $p<0.0001$	$\chi^2_{(103,\ N=201)} = 488.33$, $p<0.0001$	$\chi^2_{(101,\ N=201)} = 189.68$, $p<0.0001$	$\chi^2_{(101,\ N=201)} = 238.33$, $p<0.0001$	$\chi^2_{(98,\ N=201)} = 180.64$, $p<0.0001$	$\chi^2_{(98,\ N=201)} = 233.40$, $p<0.0001$
	SRMSR	Lower values indicate better fit		> 0.10	0.07	0.07	0.06	0.06	0.07	0.06	0.05	0.06	0.05	0.06
Indices adjusting for model parsimony	RMSEA	≤ 0.05 (good)	0.05 – 0.08 (reasonable) 0.08 – 0.10 (less ideal; mediocre)	≥ 0.10	0.14	0.15	0.08	0.09	0.14	0.14	0.07	0.08	0.06	0.08
	RMSEA 90% confidence interval	Lower bound: ≤ 0.05		Lower bound: ≥ 0.05	0.13	0.13	0.06	0.08	0.13	0.12	0.05	0.07	0.05	0.07
		Upper bound: ≤ 0.10		Upper bound: ≥ 0.10	0.15	0.16	0.09	0.11	0.15	0.15	0.08	0.10	0.08	0.10
	CFit	Not statistically significant (RMSEA < 0.05)		Statistically significant (RMSEA ≥ 0.05)	< 0.0001	< 0.0001	0.0006	< 0.001	< 0.001	< 0.001	0.04	< 0.0001	0.05	< 0.0001
Comparative or incremental fit indices	CFI	> 0.95	0.90 – 0.95	< 0.90	0.78	0.80	0.94	0.92	0.80	0.83	0.95	0.94	0.96	0.94
Predictive fit indices	AIC	Smaller values suggest better fit			588.47	609.19	294.16	346.87	559.25	554.33	259.68	308.33	256.64	309.40

(SRMSR), from the same category of absolute fit indices as the model chi-square statistic, for both models was less than 0.08 which indicated a reasonably good fit between the target model and the observed data (Brown, 2006, p. 87) and the SRMSR for the three-factor model at Time 1 (SRMSR = 0.05) was marginally better than that of the two-factor model at Time 1 (SRMSR = 0.06) and Time 2 (SRMSR = 0.06) and of its counterpart at Time 2 (SRMSR = 0.06). The root mean square error of approximation (RMSEA), an example of an index that penalises poor model parsimony, indicated an adequate, though not optimal (for which the expectation is RMSEA ≤ 0.05), fit for the two-factor model at Time 1 and the three-factor model and Time 1 and Time 2 with estimates of RMSEA ≤ 0.08. The RMSEA = 0.09 for the two-factor model at Time 2 suggested a poorer fit which was still deemed mediocre (Brown, 2006, p. 87). The lower-bound of the 90% confidence intervals consistently exceeded 0.05 implying that the close-fit hypothesis was rejected which was not favourable for the models in question while the upper-bound of the confidence intervals for the two and three-factor models at Time 2 either exceeded or were equal to 0.10 which detracted from the optimal fit of these models. The probability of close fit tested the null hypothesis that the RMSEA was not greater than 0.05 suggesting that if *p* was significant the null hypothesis could be rejected and it could be concluded that the RMSEA was greater than 0.05 indicating a lack of close fit. The test for probability of close fit was consistently significant indicating a lack of good fit for the two and three-factor models at Time 1 and Time 2. The Bentler comparative fit index (CFI), an example of an incremental fit index, which measured the relative improvement in fit of the two and three-factor models over that of a baseline model indicated acceptable fit with values falling into the 0.90 – 0.95 range (Brown, 2006, p. 87). The Akaike's information criterion (AIC) is probably the best known predictive fit index which is used to compare non-hierarchical models estimated using the same data to establish which one offers a better fit to the data, with smaller AIC values indicating better fitting models (Kline, 2011, p. 220). The AIC predictive fit index suggested that the three-factor model of moral disengagement at both Time 1 and Time 2 offered a better fit to the data overall than the two-factor model of the construct based on the object of dissociation interpretation. Thus, while the other categories of fit statistics indicated reasonably comparable adequate levels of fit between the models, the predictive fit index differentiated the three-factor model as having a better fit to the data than the two-factor model.

On the basis of adequate levels of model fit for the two and three-factor solutions for moral disengagement, with the latter appearing to outperform the former in the predictive fit indices category, model diagnostics were performed to identify localised areas of strain and sources of

ill-fit in these models before proceeding to an examination of path estimates, the accurate and valid interpretation of which were contingent on acceptable fit and the absence of localised areas of strain and sources of poor fit. Residuals and modification indices were inspected to detect localised areas of strain and possible sources of ill-fit. The normalised or standardised residuals in the three-factor solution did not exceed the recommended cut-off of 2.58 (Brown, 2006, p. 118) which suggested that the observed covariances between all the pairs of items were accurately predicted by the measurement model (Hair et al., 2010, p. 689). In the two-factor solution, the normalised residual for the item pair consisting of MJ1 and AOB1 (2.59) marginally exceeded this cut-off. However, since this value was less than 4.00, it was unlikely that it reflected an unacceptable degree of error and, consequently, it did not raise serious concern (Hair et al., 2010, p. 689). Other factors that diminished concern about this lone elevated standardised residual in the two-factor solution were that, typically, one or two elevated standardised residuals could be absorbed in some solutions and there was no consistent pattern of large standardised residuals in the solution (Hair et al., 2010, p. 689). Thus, based on a consideration of the residuals there were no obvious points of strain in either the two or three-factor solutions. A review of the modification indices was then undertaken to establish whether the addition or deletion of paths between the proposed latent factors in each solution and the moral disengagement items would enhance the overall fit of the models. The Wald tests indicated that all the parameters in the models were significant so no paths between the moral disengagement items and the latent factors specified in each solution were required to be dropped to improve their overall fit. The Lagrange multiplier tests revealed that the item representing the attribution of blame mechanism (AOB1) in both the two and three-factor solutions consistently demonstrated the propensity to cross-load onto the other latent factors. This alluded to potential problems with the uni-dimensionality of this item (Hair et al., 2010, p. 704). However, its deletion was not an option as it would have led to the attribution of blame mechanism not being represented at all in the moral disengagement scale, failure to comply with the three-indicator rule for the factor representing moral disengagement at the point of the victim and the deletion of an item that represented a justification that respondents tended to show the strongest agreement with, in the context of software piracy as an instance of antisocial behaviour. Therefore, the benefits of its retention in the scale outweighed the potential problems it introduced. In the three-factor solution, an item representing moral justification (MJ1) revealed a propensity to cross-load onto the factor comprised of the mechanisms of moral disengagement between behaviour and its consequences (displacement of responsibility; diffusion of responsibility). The re-specification of the three-factor model on the basis of this finding was not viable as there was no theoretically defensible

justification for it. Despite the potential focal areas of strain alluded to by the modification indices, there were no large normalised residuals and the two and three-factor models exhibited adequate fit. Since the re-specification suggestions were not theoretically sensible, the models were not adjusted on the basis of these recommendations and it was deemed appropriate to pursue further evaluation of these models in their original format with the understanding that the cross-loadings were potentially a function of more similarity than difference between the latent constructs (Hair et al., 2010).

The parameter estimates in the two and three-factor models were then examined to assess the extent to which they made statistical and substantive sense (Brown, 2006, p. 126). The parameter estimates (factor loadings, factor correlations and indicator error variances) did not assume illogical or out-of-range values (standardised factor loadings and correlations did not exceed 1.00 and there were no negative factor or indicator error variances) and were statistically significant. The standardised factor loadings were statistically significant at the $p < 0.001$ level and exceeded the 0.50 rule of thumb proposed by Hair et al. (2010, p. 685) which confirmed that the moral disengagement items were strongly and significantly related to their associated latent constructs in the two and three-factor models. The direction of the factor loadings was consistent with what was originally predicted. These findings supported the statistical and substantive viability of the parameter estimates which contributed to the generally positive sentiment towards these models based on their adequate levels of overall fit and their not insurmountable areas of localised strain.

Construct validity was one of the primary objectives of the confirmatory factor analysis which sought to determine two main features of the measurement models. First, it examined whether the items or indicators that measured a latent construct converged or shared a high proportion of variance in common and second, it assessed the extent to which latent constructs were genuinely different from one another (Hair et al., 2010, pp. 686-687). The average variance extracted (AVE) estimate is a summary indicator of convergence with values ≥ 0.50 indicating adequate convergence (Hair et al., 2010). The items loading onto the two latent constructs in the two-factor model (i.e. moral disengagement mechanisms in which the victim was absent as the object of dissociation as the first factor [Time 1: AVE = 0.50; Time 2: AVE = 0.54] and moral disengagement mechanisms with the victim present as the object of dissociation as the second factor [Time 1: AVE = 0.75; Time 2: AVE = 0.76]) and the three latent constructs in the three-factor model (i.e. moral disengagement mechanisms implying an internal locus of responsibility, in which the victim was absent as the object of dissociation, as the first factor [Time 1: AVE =

0.54; Time 2: AVE = 0.57], moral disengagement mechanisms implying an external locus of responsibility, in which the victim was absent as the object of dissociation, as the second factor [Time 1: AVE = 0.51; Time 2: AVE = 0.57] and moral disengagement mechanisms implying an external locus of responsibility with the victim present as the object of dissociation constituting the third factor [Time 1: AVE = 0.75; Time 2: AVE = 0.75]), appeared to converge adequately at both measurement points suggesting that, on average, more of the variance in the items was explained by the latent structure imposed on them than by error. The construct reliability derived from the squared sum of factor loadings of items comprising each construct and the sum of the corresponding error variance terms also provided an indication of convergent validity. The construct reliability estimates for the two-factor solution ranged from 0.90 to 0.94 and for the three-factor solution the range was from 0.80 to 0.92 across Time 1 and Time 2 which exceeded the rule of thumb of 0.70, indicating good internal consistency and implying that the items consistently represented the same underlying construct in each case (Hair et al., 2010). The main criteria for assessing discriminant validity in the longitudinal study were the size and statistical significance of the latent factor covariances. All latent factor covariances were statistically significant at the $p < 0.001$ level and ranged from 0.61 to 0.64 for the two-factor solution and from 0.61 to 0.88 for the three-factor solution across Time 1 and Time 2 suggesting fairly high intercorrelations between the latent constructs. Coupled with evidence of cross-loadings in both solutions, this implied that the latent constructs were potentially more similar than distinct from each other which diminished evidence of discriminant validity in the two and three-factor representations of the moral disengagement construct.

The adequate fit of the models of moral disengagement based on its novel conceptualisations as a two (based on the object of dissociation interpretation) and three-factor construct (based on a combination of the locus of responsibility and object of dissociation interpretations), the statistical and substantive viability of the parameter estimates in these models, specifically the factor loadings which indicated that the measured items were strongly and significantly associated with the latent constructs onto which they were envisaged to load, and evidence of convergent validity alluded to the viability of the two and three-factor conceptualisations of moral disengagement as potentially valid novel interpretations of the construct. While the predictive fit index suggested that the three-factor model offered a slightly better interpretation of the data than the two-factor model, despite its potential utility, the interpretation of moral disengagement as a three-factor construct demonstrated evidence of diminished discriminant validity (with high

intercorrelations between the latent constructs) suggesting, perhaps, that moral disengagement may actually be most optimal as a unitary construct.

The analysis then turned to the previously tested notions of moral disengagement as a unitary and a four-factor construct to ascertain which of them offered a more viable interpretation. The model of moral disengagement as a unitary construct was specified by allowing all sixteen measured items in the scale to load onto a single latent factor. As a four-dimensional construct, the scale was split into items measuring the mechanisms of moral disengagement clustered in terms of the points in the self-regulation process at which Bandura (1986) envisaged they could be selectively activated or disengaged (viz. at the point of reprehensible behaviour, at the point of the consequences of reprehensible behaviour, at the point between reprehensible behaviour and its consequences and at the point of the victim). Model fit statistics revealed that the model of moral disengagement as a four-factor construct fitted the data better than the model representing it as a unitary construct. The four-factor model tended to demonstrate good fit to the data at Time 1 and an adequate fit to the data at Time 2 while the model representing it as a unitary construct generally indicated a poor fit to the data at both Time 1 and Time 2 (see Table 6.15).

On the basis of adequate to good levels of model fit for the four-factor solution, model diagnostics were performed to identify areas of strain and sources of ill-fit. While some of the normalised residuals for item pairs in the four-factor solution (Time 1: AOB1 and MJ1 [2.69], AOB1 and MJ2 [2.60]; Time 2: AOB1 and DIFF2 [3.40], AOB1 and MJ1 [2.87]) exceeded the recommended cut-off (Brown, 2006, p. 118), they did not reflect an unacceptable degree of error and were, thus, not of grave concern (Hair et al., 2010, p. 689). Thus, the residuals did not indicate any notable points of strain in this solution. The modification indices were then reviewed to assess whether the addition or deletion of paths between the proposed latent factors and the moral disengagement items would enhance the overall fit of the models representing the four-factor interpretation of the construct at Time 1 and Time 2. The Wald tests indicated that all the parameters were significant so no paths between moral disengagement items and the latent factors were required to be dropped to improve the overall fit. The Lagrange multiplier tests revealed that the item representing the attribution of blame mechanism (AOB1) demonstrated the propensity to cross-load onto the other latent factors in each solution. This alluded to potential problems with the uni-dimensionality of this item (Hair et al., 2010, p. 704). However, once again, its deletion was not considered as an option because it was the only item representing the attribution of blame mechanism in the questionnaire. The item representing moral justification (MJ1) revealed a

propensity to cross-load onto the factor capturing the mechanisms of moral disengagement between behaviour and its consequences (displacement of responsibility; diffusion of responsibility). The re-specification of the four-factor model on the basis of this finding was not viable as there was no theoretically defensible justification for it. Despite the potential focal areas of strain alluded to by the modification indices there were no large normalised residuals and the four-factor model demonstrated adequate to good fit. Since the re-specification suggestions were not theoretically defensible the model was not adjusted on the basis of these recommendations and it was deemed appropriate to pursue the further evaluation of this model in its original format with the understanding that the cross-loadings were potentially a function of items that were specified to load onto specific latent constructs, sharing more similarities than differences with items loading onto other latent constructs (Hair et al., 2010).

The parameter estimates in the four-factor model were then examined. The parameter estimates assumed logical values that were in-range and were statistically significant at the $p < 0.001$ level (except for the error variance of item DEH2 which was significant at the $p < 0.01$ level). The standardised factor loadings were statistically significant at the $p < 0.001$ level which confirmed that the moral disengagement items were strongly and significantly related to their associated latent constructs. The direction of the factor loadings was consistent with what was originally predicted. These findings supported the statistical and substantive viability of the parameter estimates which contributed to the generally positive sentiment towards the four-factor model based on adequate to good levels of overall fit and only minor areas of localised strain.

The items loading onto the latent constructs in the four-factor model (i.e. moral disengagement mechanisms at the point of the reprehensible behaviour as the first factor [Time 1: AVE = 0.54; Time 2: AVE = 0.53]; moral disengagement mechanisms at the point between reprehensible behaviour and its consequences as the second factor [Time 1: AVE = 0.51; Time 2: AVE = 0.56]; moral disengagement mechanisms at the point of the consequences of reprehensible behaviour as the third factor [Time 1: AVE = 0.56; Time 2: AVE = 0.66] and moral disengagement mechanisms at the point of the victim as the fourth factor [Time 1: AVE = 0.75; Time 2: AVE = 0.76]) appeared to converge adequately at both measurement points suggesting that, on average, more of the variance in the items was explained by the latent structure imposed on them than by error. The construct reliability estimates for the four-factor solution ranged from 0.80 to 0.90 across Time 1 and Time 2 indicating good internal consistency and implying that the items consistently represented the same underlying construct in each case (Hair et al., 2010). All latent

factor covariances were statistically significant at the $p < 0.001$ level and ranged from 0.53 to 0.98 for the four-factor solution across Time 1 and Time 2 suggesting fairly high intercorrelations between the latent constructs. Coupled with some evidence of cross-loadings, this implied that the latent constructs were potentially more similar than distinct from each other which diminished evidence of discriminant validity in the four-factor representation of the moral disengagement construct.

The adequate to good fit of the four-factor model of moral disengagement, the statistical and substantive viability of its parameter estimates, specifically the factor loadings which indicated that the measured items were strongly and significantly associated with the latent constructs onto which they were envisaged to load, and evidence of convergent validity alluded to the viability of the four-factor solution as a potentially valid interpretation of moral disengagement. There were striking similarities between the three and four-factor solutions of moral disengagement in terms of model fit, viability of parameter estimates and convergent validity rendering it difficult to definitively rate either solution as being better than the other. Unlike for the novel conceptualisations of moral disengagement as two (based on the object of dissociation interpretation) and three-factor solutions (discussed above), the predictive fit index did not aid in differentiating the three and four-factor solutions. The predictive fit index suggested that the four-factor model (AIC = 256.64) offered a better interpretation of the data than the three-factor model (AIC = 259.68) at Time 1 while the three-factor solution (AIC = 308.33) offered a marginally better fit to the data than the four-factor solution (AIC = 309.40) at Time 2. Another similarity between the three and four-factor solutions was in relation to their discriminant validity. Both solutions sported relatively high and significant intercorrelations between the latent constructs suggesting, perhaps, that moral disengagement may have fared better as a unitary construct than as a multi-faceted one. However, the analysis of moral disengagement as a unitary construct in which all the items in the scale were specified to load onto a single latent factor did not yield promising results and, more importantly, did not outperform the multi-dimensional models.

Therefore, an alternate avenue was explored to render moral disengagement into a unitary construct while retaining aspects of its multi-dimensional (specifically its four-dimensional) structure in order to understand if this conceptualisation offered a more meaningful way to understand its dimensionality in the empirical domain. The translation of moral disengagement into a unitary construct while retaining aspects of its three-dimensional structure would not have been statistically viable as it would not have led to an over-identified model. Thus, a

representation of moral disengagement as a unitary construct comprised of four composite items (each constituting an aggregation of the original items on the basis of the points in the self-regulation process at which moral disengagement was envisaged to be selectively activated or disengaged) was conceptualised and tested to determine whether it offered a good fit to the data in its own right, whether its fit was better than the fit of the previous original conceptualisation of moral disengagement as a unitary construct in this study and whether its fit was better than that of the multi-dimensional three and four-factor conceptualisations of the construct. This analysis was important because it was designed to understand if moral disengagement could simultaneously accommodate its propensity to be a one-dimensional construct while at the same time acknowledge its multi-faceted theoretical character and if both these qualities could be captured in an operationalisation of the moral disengagement variable to yield a powerful conceptualisation not before encountered or tested in the empirical research.

The six items representing the moral justification, euphemistic labelling and advantageous comparison mechanisms (i.e. moral disengagement at the point of the reprehensible behaviour) were aggregated to form the first item in the new scale of moral disengagement as a parcelled unitary construct. The second item was comprised by summing the four items loading onto the displacement and diffusion of responsibility mechanisms (i.e. moral disengagement at the point between reprehensible behaviour and its consequences). Three items from the distortion of consequences mechanism were aggregated to represent moral disengagement at the point of the consequences of reprehensible behaviour and three items representing the attribution of blame and dehumanisation mechanisms (i.e. moral disengagement at the point of the victim) were summed to create the fourth item. The factor structure of this unitary scale of moral disengagement, comprised of four composite items representing the four points in the self-regulation process at which moral disengagement was likely to be activated (Bandura, 1986), is graphically depicted in Figure 6.3. Note that the specific items that were aggregated to form each of the four parcelled items are listed in boxes above each composite item with which moral disengagement is measured in this conceptualisation.

Simple descriptive statistics for the four items in the scale (see Table 6.17) revealed that their skewness and kurtosis values at Time 1 and Time 2 fell into the acceptable range for univariate normality proposed by Garson (2011). Therefore, no transformations were performed. The correlation analysis revealed that all intercorrelations were significant at the $p < 0.001$ level and were greater than 0.30 but less than 0.80 indicating that their associations were neither too weak

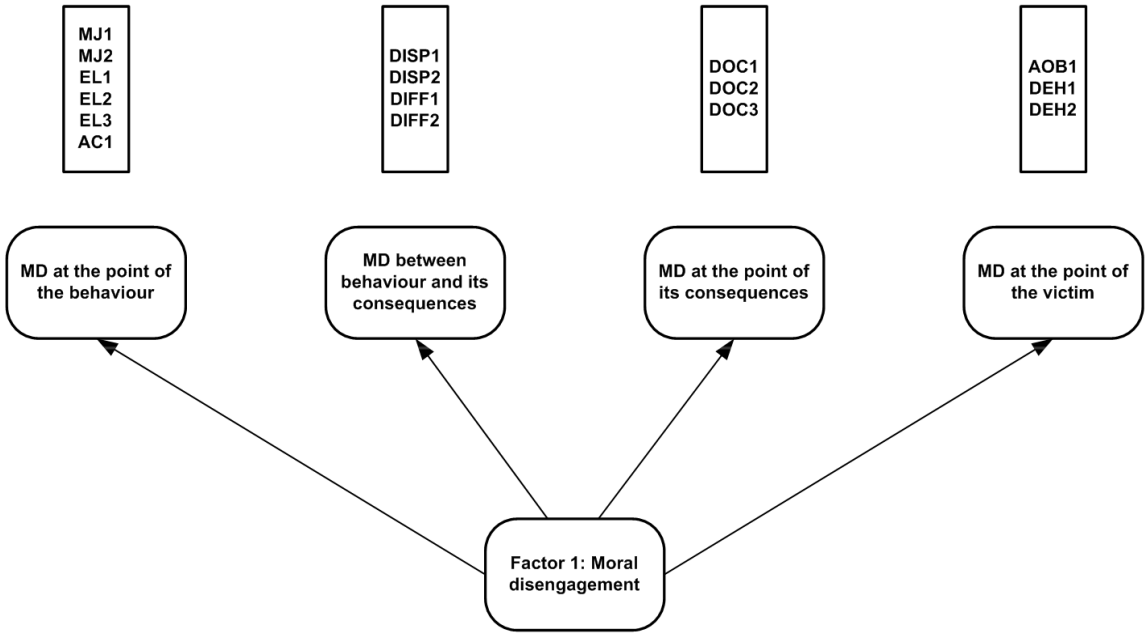


Figure 6.3: Factor structure of moral disengagement as a parcelled unitary construct

nor too strong. This pointed to the homogeneity of the scale and the absence of multicollinearity, offering the first glimpse of evidence that the four parcelled items generally cohered and belonged together. The significance of the correlation coefficients among the four items in the unitary scale, the absence of intercorrelations ≤ 0.30 and the more than acceptable measure of sampling adequacy (MSA) values of 0.80 and 0.82 for Time 1 and Time 2 respectively (MSA values of 0.50 and above were considered acceptable) implied that the use of exploratory principal components factor analysis on the scale was appropriate. The principal components exploratory factor analysis results are presented in Table 6.18. The communality and MSA estimates for individual items suggested that they possessed sufficient explanatory power and met the acceptable minimum levels for explaining the underlying factor pattern in the solution which supported a single factor structure.

Internal consistency reliability results for this conceptualisation of moral disengagement as a composite unitary construct are presented in Table 6.19. Scale reliabilities at Time 1 and Time 2 were acceptable. All item-total correlations suggested that the items correlated very well with the scale overall. No increment in scale reliability would have resulted if any of the items had been deleted offering further evidence that these four composite items were not problematic. Thus, the internal consistency results suggested that the items in the re-conceptualised scale of moral

disengagement as a unitary construct appeared to belong together, were coherent and seemed to be measuring the same underlying construct.

Table 6.17: Simple descriptive statistics and correlations for moral disengagement as a parcelled unitary construct at Time 1 and Time 2

		Simple descriptive statistics				Correlations			
		Mean	SD	Skewness	Kurtosis	1	2	3	4
Time 1									
1	MD_BEH	8.00	1.29	-0.04	-1.09	1.00			
2	MD_BBC	5.37	0.83	-0.04	-0.87	0.65***	1.00		
3	MD_CONS	4.09	0.71	-0.06	-0.96	0.72***	0.57***	1.00	
4	MD_VIC	4.76	1.25	-0.21	-0.78	0.59***	0.46***	0.57***	1.00
Time 2									
1	MD_BEH	7.99	1.19	-0.10	-0.93	1.00			
2	MD_BBC	5.38	0.80	-0.004	-0.76	0.73***	1.00		
3	MD_CONS	4.01	0.70	-0.10	-0.81	0.80***	0.68***	1.00	
4	MD_VIC	4.66	1.21	-0.22	-0.77	0.61***	0.62***	0.60***	1.00

* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$

Table 6.18: Exploratory principal components factor analysis of moral disengagement as a parcelled unitary construct at Time 1 and Time 2

Parcelled MD Time 1				**Overall MSA = 0.80**
		Factor 1	**Communality**	**Kaiser's MSA**
1	MD_BEH	**0.90**	0.80	0.75
2	MD_BBC	**0.80**	0.64	0.84
3	MD_CONS	**0.86**	0.74	0.80
4	MD_VIC	**0.77**	0.60	0.87
Parcelled MD Time 2				**Overall MSA = 0.82**
		Factor 1	**Communality**	**Kaiser's MSA**
1	MD_BEH	**0.91**	0.82	0.77
2	MD_BBC	**0.87**	0.76	0.85
3	MD_CONS	**0.89**	0.79	0.79
4	MD_VIC	**0.80**	0.65	0.89

Table 6.19: Internal consistency reliability for moral disengagement as a parcelled unitary construct at Time 1 and Time 2

		Parcelled MD Time 1		**Parcelled MD Time 2**	
		Correlation with total	**Cronbach α with deleted variable**	**Correlation with total**	**Cronbach α with deleted variable**
1	MD_BEH	0.77	0.73	0.80	0.80
2	MD_BBC	0.65	0.80	0.77	0.82
3	MD_CONS	0.74	0.78	0.79	0.83
4	MD_VIC	0.62	0.81	0.67	0.87
		Parcelled MD Time 1		**Parcelled MD Time 2**	
Scale reliability		[F1]Items 1-4	$\alpha = 0.83$	[F1]Items 1-4	$\alpha = 0.87$

The results of the confirmatory factor analysis for the re-conceptualised single-factor model of moral disengagement are presented in Table 6.20. This analysis sought to illustrate how the re-conceptualised construct, as a composite unitary factor, compared with the original conceptualisation of moral disengagement as a single-factor construct and to compare the

viability of this new construal with that of other multi-faceted solutions encountered earlier in this analysis. The results of this comparative analysis are presented in Table 6.21.

Table 6.20: Confirmatory factor analysis for moral disengagement as a parcelled unitary construct at Time 1 and Time 2

		Parcelled MD Time 1		Parcelled MD Time 2	
		R^2	**Factor loading**	**R^2**	**Factor loading**
1	MD_BEH	0.80	0.89	0.82	0.91
2	MD_BBC	0.51	0.72	0.65	0.81
3	MD_CONS	0.66	0.81	0.75	0.87
4	MD_VIC	0.45	0.67	0.48	0.70
		Parcelled MD Time 1		**Parcelled MD Time 2**	
Item-factor linkages		[F1]Items 1-4		[F1]Items 1-4	
Model fit statistics		$\chi^2_{(2,\ N=201)} = 1.27$, $p = 0.53$; SRMSR = 0.01; RMSEA = 0.00 [90% CI = 0.00 – 0.12], CFit = 0.67; GFI = 1.00; CFI = 1.00; Critical N = 940; AIC = 17.27		$\chi^2_{(2,\ N=201)} = 6.56$, $p = 0.04$; SRMSR = 0.02; RMSEA = 0.11 [90% CI = 0.02 – 0.20], CFit = 0.11; GFI = 0.98; CFI = 0.99; Critical N = 183; AIC = 22.56	

Note: All factor loadings are significant at p<0.001

Model fit statistics revealed that the model of moral disengagement as a composite unitary construct comprised of four items fitted the data better than the original model representing it as a unitary construct comprised of sixteen items. Thus, overall, the composite single-factor model of moral disengagement tended to demonstrate adequate to good fit to the data while the original single-factor model generally indicated poor fit. Compared to the four-factor conceptualisation, the composite unitary model tended to demonstrate better fit to the data overall. This was expected given the significant reduction in the number of items (a quarter of the items was used to measure moral disengagement in the parcelled unitary model compared with the number of items used to measure it in the three and four-factor models) and the reduction in the number of latent constructs (from three and four to one), resulting in the simplicity of the composite unitary model which offered an advantage for model fit.

The normalised residuals at Time 1 and Time 2 for the parcelled single-factor solution were well within the recommended guidelines suggesting that the items constituting the scale did not contain an unacceptably high degree of error. Thus, there were no notable points of strain in the model. The parameter estimates were not illogical or out of range and were statistically significant ($p < 0.001$). Standardised factor loadings ranged from 0.67 to 0.89 at Time 1 and from 0.70 to 0.91 at Time 2 confirming that the composite items were strongly and significantly related to their associated latent construct at each point in time. The direction of the factor loadings was consistent with what was originally predicted. These findings supported the statistical and

Table 6.21: Decision rules for assessing model fit and fit statistics for the parcelled unitary interpretation of moral disengagement relative to the original one, three and four-factor conceptualisations

DECISION RULES FOR ASSESSING MODEL FIT					COMPARATIVE ANALYSIS OF MODEL FIT INDICES FOR VARIOUS INTERPRETATIONS OF MORAL DISENGAGEMENT RELATIVE TO THE PARCELLED UNITARY CONCEPTUALISATION							
Category	**Fit index**	**Indicators of good fit**	**Indicators of adequate/mediocre fit**	**Indicators of poor fit**	**MD as a parcelled 1-factor construct**		**MD as the original 1-factor construct**		**MD as a 3-factor construct**		**MD as a 4-factor construct**	
					Time 1	**Time 2**	**Time 1**	**Time 2**	**Time 1**	**Time 2**	**Time 1**	**Time 2**
Absolute fit indices	χ^2 statistic	Not statistically significant		Statistically significant	$\chi^2_{(2,\ N=201)} = 1.27$, $p = 0.53$	$\chi^2_{(2,\ N=201)} = 6.56$, $p = 0.04$;	$\chi^2_{(104,\ N=201)} = 524.47$, $p<0.0001$	$\chi^2_{(104,\ N=201)} = 545.19$, $p<0.0001$	$\chi^2_{(101,\ N=201)} = 189.68$, $p<0.0001$	$\chi^2_{(101,\ N=201)} = 238.33$, $p<0.0001$	$\chi^2_{(98,\ N=201)} = 180.64$, $p<0.0001$	$\chi^2_{(98,\ N=201)} = 233.40$, $p<0.0001$
	SRMSR	Lower values indicate better fit		> 0.10	0.01	0.02	0.07	0.07	0.05	0.06	0.05	0.06
Indices adjusting for model parsimony	RMSEA	≤ 0.05 (good)	0.05 – 0.08 (reasonable) 0.08 – 0.10 (less ideal; mediocre)	≥ 0.10	0.00	0.11	0.14	0.15	0.07	0.08	0.06	0.08
	RMSEA 90% confidence interval	Lower bound: ≤ 0.05		Lower bound: ≥ 0.05	0.00	0.02	0.13	0.13	0.05	0.07	0.05	0.07
		Upper bound: ≤ 0.10		Upper bound: ≥ 0.10	0.12	0.20	0.15	0.16	0.08	0.10	0.08	0.10
	CFit	Not statistically significant (RMSEA > 0.05)		Statistically significant (RMSEA ≤ 0.05)	0.67	0.11	< 0.0001	< 0.0001	0.04	< 0.0001	0.05	< 0.0001
Comparative or incremental fit indices	CFI	> 0.95	0.90 – 0.95	< 0.90	1.00	0.99	0.78	0.80	0.95	0.94	0.96	0.94
Predictive fit indices	AIC	Smaller values suggest better fit			17.27	22.56	588.47	609.19	259.68	308.33	256.64	309.40

substantive viability of the parameter estimates and, consequently, the interpretation of moral disengagement as a composite unitary model based on adequate to good levels of overall fit and the absence of localised areas of strain.

The items loading onto the latent factor in the composite unitary model at Time 1 (AVE = 0.61) and Time 2 (AVE = 0.68) appeared to converge adequately. The construct reliability estimate for the composite unitary construct was 0.86 at Time 1 and 0.89 at Time 2. These suggested good internal consistency and indicated that the items consistently measured the same underlying construct. Cumulatively, the reasonably good fit of the composite unitary model, the statistical and substantive viability of its parameter estimates, especially the factor loadings which suggested that the measured items were strongly and significantly associated with the single latent construct onto which they were envisaged to load, and evidence of convergent validity, which implied that the items were all measuring the same underlying construct, alluded to the viability of the interpretation of moral disengagement as a composite unitary construct. Although this interpretation of moral disengagement was uni-dimensional, the internal structural composition of the four items respected the four-faceted structure implied by Bandura's (1986) aggregated definition of moral disengagement mechanisms clustered in accordance with the four points in the self-regulation process at which they could be selectively activated or disengaged. Thus, this interpretation married the simplicity and parsimony of a single-factor solution with a four-faceted internal scaffold that remained sensitive to one of its founding theoretical conceptualisations.

This interpretation of moral disengagement as a parcelled unitary construct was deemed to be most viable compared to the other five interpretations considered in this study and was used to answer the next set of research questions pertaining to temporal precedence. The exploration of causal relationships between moral disengagement and the other social cognitive constructs included in this investigation (viz. proficiency-based self-efficacy, intention and behaviour) necessitated a longitudinal research design. Typically, the equality of construct measurement over time is not actively examined in longitudinal research; it is assumed (Brown, 2006, p. 253). In this study, longitudinal measurement invariance tests were conducted on the social cognitive constructs individually, starting with moral disengagement, to verify that the structure of each construct and its measurement was stable over time before pairing them up into cross-lagged panel models to establish temporal precedence. Longitudinal measurement invariance tests on the

remaining social cognitive constructs were conducted in the context of explorations of their reliability, validity and dimensionality later in this discussion.

6.3.1.2 Research question 1.2: Is the structure of moral disengagement as a composite unitary construct invariant over time?

The results of the tests of longitudinal measurement invariance for moral disengagement as a composite unitary construct are presented in Table 6.22. The first step was to confirm that the same factor structure was present at both measurement occasions. The error terms for identical moral disengagement items across time were correlated to cater for the additional covariance that was likely to exist between repeated measures due to temporally stable method effects (Brown, 2006, p. 257). Model fit statistics for individual models at Time 1 and Time 2 revealed adequate to good fit to the data at both measurement points (see Table 6.21) and the absence of significant areas of strain in the solution. An examination of the parameter estimates suggested that the indicators were strongly and significantly related to the underlying single latent construct at both points in time, the error covariances were statistically significant at the $p < 0.01$ level with standardised estimates ranging from 0.08 to 0.37, and the test-retest covariance of the latent construct was statistically significant at the $p < 0.001$ level. Taken together, these pieces of information suggested that the factor structure of moral disengagement as a composite unitary construct was temporally equivalent (i.e. identical at both assessment points) which allowed for additional tests to examine other aspects of measurement invariance such as equality of factor loadings and equality of indicator error variances.

Table 6.22: Tests for longitudinal measurement invariance of moral disengagement as a composite unitary construct at Time 1 and Time 2

	χ^2	*df*	χ^2diff	Δ*df*	*p*
MD as a parcelled unitary construct					
Equal form	16.73	15			
Equal factor loadings	20.24	19	3.51	4	0.48
Equal indicator error variances	40.73	23	20.94	4	0.0003
Test-retest covariances of latent constructs	F1 @ T1	F1 @ T2	0.89		
Model fit statistics	Equal form	SRMSR = 0.02; RMSEA = 0.02 [90% CI = 0.00-0.07], CFit = 0.76; GFI = 0.98; CFI = 1.00; Critical N = 299; AIC = 58.73			
	Equal factor loadings	SRMSR = 0.04; RMSEA = 0.02 [90% CI = 0.00 – 0.07], CFit = 0.83; GFI = 0.97; CFI = 1.00; Critical N = 298; AIC = 54.24			
	Equal indicator error variances	SRMSR = 0.04; RMSEA = 0.06 [90% CI = 0.03 – 0.09], CFit = 0.24; GFI = 0.95; CFI = 0.99; Critical N = 173; AIC = 66.73			

Note: All latent factor covariances were significant at p<0.001

In the test for the equality of factor loadings at the two measurement points, the factor loadings of items measured repeatedly across the two measurement occasions were held to equality. The result of the χ^2 difference test (χ^2_{diff} (4) = 3.51 *ns*) between the equal form and the equal factor loadings models was not significant suggesting that the equality constraints applied to the factor loadings of the identical items measured at two points in time did not significantly degrade model fit. This implied that items demonstrated equivalent relationships (i.e. factor loadings) to the latent construct over time. The test for equality of indicator error variances held the error variances of identical items at both assessment points to equality. This test resulted in a significant decrease in model fit (χ^2_{diff} (23) = 20.94, $p < 0.001$) revealing that each item's error variance was temporally non-invariant (i.e. not equivalent over time). Brown (2006, p. 266) suggested that heterogeneity of variance was common in repeated measures designs such as this one and that tests of equal indicator residual variances generally failed in actual datasets. He noted that this condition was not as important to the assessment of longitudinal measurement invariance as the prior tests of equal form and equal factor loadings so the lack of invariance for the indicator error variances was not deemed problematic in this study. Based on findings from the equal form and equal factor loadings tests of longitudinal measurement invariance, it was possible to conclude that moral disengagement, as a composite unitary construct, was temporally equivalent across the two measurement points and that the factor loadings of items constituting the construct were invariant over time. Essentially, therefore, the measurement of moral disengagement as a composite unitary construct appeared to be stable over time in terms of its factor structure and its factor loadings. In the light of these findings the researcher was confident to proceed with longitudinal explorations of temporal precedence involving the moral disengagement construct.

6.3.1.3 Summary of the results for the moral disengagement construct

The analysis of moral disengagement in this longitudinal study revealed that, while multi-faceted construals of the construct (in the form of Bandura's (1986) four-factor conceptualisation and the novel three-factor conceptualisation) emerged as potentially viable from a structural point of view, the high inter-correlations between the latent factors in both cases alluded to the possibility that moral disengagement may, in fact, be best represented as a unitary construct. However, the test of a unitary model consisting of sixteen discrete items reflected a poor fit to the data. This finding led to an alternate unitary conceptualisation which retained the four-dimensional characteristics proposed by Bandura (1986) in which items reflecting the mechanisms situated at

the four points in the self-regulation process were aggregated to form four composite items. Tests of this composite unitary model of moral disengagement revealed adequate to good fit to the data, no significant points of strain and adequate convergent validity suggesting that this conceptualisation offered the most viable interpretation of the construct in this study. Due to the longitudinal nature of the analysis it was important to determine whether the measurement of moral disengagement as a composite unitary construct was longitudinally invariant (i.e. measured stably across time). Tests of longitudinal measurement invariance revealed that the construct was structurally equivalent and that the factor loadings of the items on the latent construct were invariant across time. This finding provided the researcher with confidence to pursue the exploration of the next set of research questions involving temporal precedence which necessitated the use of cross-lagged panel models.

6.3.1.4 Dimensionality and longitudinal measurement invariance analysis of self-efficacy, intention and behaviour

While moral disengagement was the focal point of this investigation, it was also important to understand the dimensionality and the temporal invariance of self-efficacy, intention and behaviour. For the purpose of this study these ancillary social cognitive constructs were conceptualised as uni-dimensional so the aim was to determine whether the proposed uni-dimensional structure was viable and whether their measurement was temporally invariant. The detailed results commenting on the dimensionality and longitudinal measurement invariance of the proficiency-based self-efficacy, intention and behaviour constructs are presented in Appendix 7. Next a brief summary of these results is provided.

6.3.1.5 Summary of dimensionality and longitudinal measurement invariance results for ancillary social cognitive constructs

The exploration of the dimensionality of self-efficacy, intention, and behaviour revealed that the data supported their conceptualisation as single-faceted constructs. However, this analysis was not devoid of complexities characterised by complications with the internal consistency reliability of intention, difficult decisions that had to balance the theoretical and actual distributional properties of the behaviour scale with statistical requirements and points of strain in the confirmatory factor analysis models for self-efficacy and behaviour based on statistically non-significant indicator error variances for select temporal pairs of variables. Notwithstanding these

challenges, the results supported the uni-dimensionality of self-efficacy, intention, and behaviour. The assessment of longitudinal measurement invariance, necessitated by the need to explore causal relationships between moral disengagement and the ancillary social cognitive constructs included in this study, revealed that the measurement of self-efficacy, intention and behaviour appeared to be stable over time in terms of their factor structure. Factor loadings and indicator error variances for the self-efficacy and behaviour constructs were temporally invariant. However, this was not the case for intention. While the inequality of error indicator variances was not deemed problematic, the inequality of the factor loadings on the latent construct across the two measurement points for intention suggested that one item in particular INT2 did not have an equivalent factor loading on the latent construct over time. However, further examination of this inequality revealed that, in reality, when the equality constraint was released, the pattern of the factor loadings on the latent construct was the same which suggested that the relationship of the item to the underlying latent variable was consistent across time implying more similarity than difference. Essentially, therefore, the measurement of self-efficacy, intention and behaviour generally appeared to be stable over time in terms of their factor structure, factor loadings (with the exception of intention) and indicator error variances (with the exception of intention). However, more similarities than differences were noted in the measurement of intention over time. Therefore, in the light of these findings the researcher was confident to proceed with longitudinal explorations of temporal precedence involving the ancillary social cognitive constructs of self-efficacy, intention and behaviour in relation to the focal moral disengagement construct.

6.3.2 Research questions on the temporal positions of moral disengagement, self-efficacy, intention and behaviour in a structural model of social cognitive theory

The main objective in the temporal precedence analysis was to determine moral disengagement's position (i.e. the point or points at which it was likely to be activated) relative to proficiency-based self-efficacy, intention and behaviour (past and future) in a structural model of social cognitive theory. A secondary objective was to determine the temporal positions of the ancillary social cognitive constructs relative to each other to predict how this structural model could best be constructed to aid in explaining antisocial human behaviour. The exploration of temporal precedence in this study was oriented towards answering two research questions.

- **Research question 2.1**: *What position does moral disengagement occupy in a structural model of social cognitive theory?*
- **Research question 2.2**: *What positions do the ancillary social cognitive constructs of proficiency-based self-efficacy, intention and behaviour occupy in a structural model of social cognitive theory?*

The first step in the analysis of temporal precedence involved testing a series of cross-lagged panel models in which moral disengagement, measured at two points in time, was paired with self-efficacy, intention and behaviour (each of which was measured at two points in time) in turn to establish whether moral disengagement temporally preceded or came after these ancillary social cognitive constructs. Initial chi-square difference tests comparing cross-lagged panel models in which the variances of latent constructs, disturbance terms and cross-paths between pairs of latent constructs were allowed to be freely estimated with corresponding models in which the cross-paths between pairs of latent variables were held to equality did not yield interpretable results. These findings did not allow meaningful conclusions to be reached regarding the temporal precedence of moral disengagement in relation to the other social cognitive constructs. The comparison of interest in this analysis was the standardised estimates of the cross-paths between pairs of social cognitive variables measured at two points in time. The initial chi-square difference tests compared the extent to which the unstandardised parameter estimates of the cross-paths differed from each other. However, a problem arose because none of the unstandardised cross-paths were statistically different from one another, rendering it impossible to comment on temporal precedence on the basis of these results.

In the quest to compare standardised path estimates with each other to examine the extent to which they were different in order to comment on temporal precedence, an alternate approach to testing the cross-lagged panel models was attempted. A series of cross-lagged panel models in which the variances of latent constructs were fixed to 1.00 and the variances of disturbance terms were set to be equal to the standardised variance estimates for disturbance terms were tested with combinations of moral disengagement measured at two points in time paired with self-efficacy, intention and behaviour (each of which was measured at two points in time) in turn. This alternate set of cross-lagged panel models achieved the goal of rendering the unstandardised parameter estimates equal to the standardised ones. Tests of the extent to which the standardised cross-paths were different from each other returned only one statistically significant result for the model including moral disengagement and intention. Thus, the first and second iterations of analyses of

cross-lagged panel models did not yield cross-paths that were statistically significantly different from each other (with one exception) rendering it difficult to comment on temporal precedence among the social cognitive constructs beyond the finding that moral disengagement seemed to precede intention. While there could have been several reasons for non-significant cross-paths two possibilities were considered. The first possibility was that the three to four month time-lag could have been insufficient to realise the causal effects of the relationships between the social cognitive constructs. A longer time lapse was potentially required to fully appreciate the causal effects between moral disengagement, self-efficacy and behaviour, self-efficacy, intention and behaviour and intention and behaviour. The second possibility was that the causal relationships between these sets of variables could have worked equally well in both directions suggesting that each variable both caused and was caused by the other variable. This explanation would fit comfortably in the theoretical paradigm of social cognitive theory, which accommodates the notions of bi-directional causality and reciprocal determinism, suggesting that variables are both caused by and are causes of each other (Bandura, 1986).

Using the only meaningful result that emerged from the tests of the cross-lagged panel models as a starting point, the author proceeded to answer the question about the likely temporal position of moral disengagement in relation to the intention, behaviour and proficiency-based self-efficacy constructs.

6.3.2.1 Research question 2.1: What position does moral disengagement occupy in a structural model of social cognitive theory?

In the cross-lagged model including moral disengagement and intention (see Figure 6.4) the path estimate from moral disengagement at Time 1 to intention at Time 2 was 0.32, $p < 0.001$ while the path estimate from intention at Time 1 to moral disengagement at Time 2 was -0.05*ns*. These results revealed that the cross-paths were statistically significantly different from one another which implied that they were not equivalent. This finding was crucial to concluding that the path with the larger significant standardised parameter estimate represented a probable causal relationship. Thus, on the basis of this analysis, moral disengagement at Time 1 appeared to precede intention at Time 2. In addition, moral disengagement at Time 1 could also be interpreted as temporally precedent to intention at Time 1.

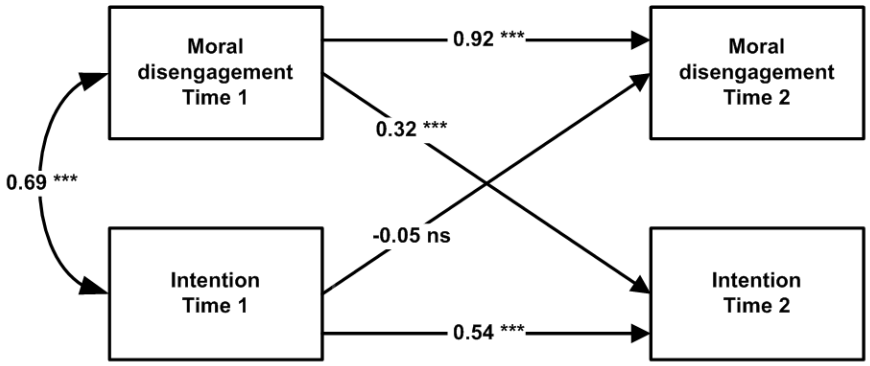
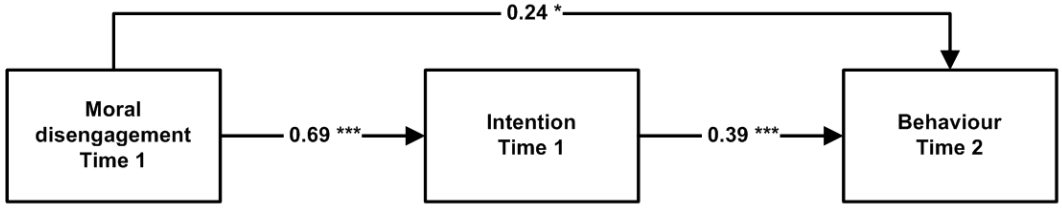


Figure 6.4: Cross-lagged model for moral disengagement and intention

While a comparison of the cross-paths in the panel model examining temporal precedence between intention and behaviour did not yield a conclusive result and, consequently, did not unambiguously support the conclusion that intention preceded behaviour, previous empirical work pointed to a causal path from intention to behaviour (Limayem et al., 2004). Intention preceded behaviour in previous research and it was theoretically positioned as temporally precedent to behaviour in the theories of reasoned action, planned behaviour, interpersonal behaviour and social cognitive theory. This provided sufficient reason to assume that the causal path between intention and behaviour was likely to be meaningful in this study. Thus, a causal model in which moral disengagement preceded intention which, in turn, preceded behaviour marked the beginning of the second step in the analysis of temporal precedence which involved the evaluation of a series of mediation models. In the first of these mediation models intention was envisaged to mediate the causal relationship between moral disengagement and behaviour; the results of which are presented in Figure 6.5.



* p < 0.05
** p < 0.01
*** p < 0.001

Indirect effect T1_MD ⇨ T2_BEH = 0.27***

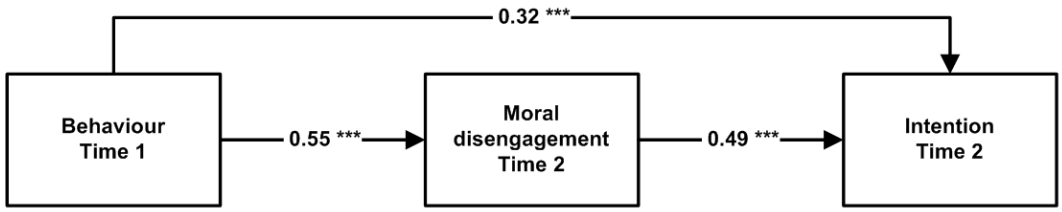
Model fit statistics: $\chi^2_{(32,\ N=201)} = 39.43$, $p = 0.17$; SRMSR = 0.04; RMSEA = 0.03 [90% CI = 0.00 – 0.07], CFit = 0.77; GFI = 0.96; CFI = 0.99; Critical N = 235; AIC = 85.43

Figure 6.5: Test of intention as a mediator of moral disengagement and behaviour

Model fit statistics for the mediation model presented in Figure 6.5 unanimously suggested a good fit to the data. The standardised normalised residuals were normally distributed and did not exceed 1.85 rendering them well within the recommended guidelines. This suggested that the items constituting the scales did not contain an unacceptably high degree of error. The modification indices revealed that all the paths were significant and, consequently, that none of them could be deleted in the Wald test to yield a better fitting model. The structural model tested in the mediation analysis was saturated suggesting that no additional paths could have been proposed in the Lagrange multiplier test. Thus, there were no notable points of strain. The parameter estimates (factor loadings, path coefficients and indicator error variances) did not assume illogical or out of range values and were statistically significant at the $p < 0.001$ level (except for the path coefficient between the latent constructs of moral disengagement and behaviour [0.24] which was significant at the $p < 0.05$ level and the error variance of INT3 [0.07] which was significant at $p < 0.01$). Standardised factor loadings ranged from 0.63 to 0.96 exceeding the 0.50 guideline proposed by Hair et al. (2010, p. 685), confirming that the measured items were strongly and significantly related to their associated latent constructs. Standardised path coefficients ranging from 0.24 to 0.69 were significant, non-trivial and in the predicted direction indicating support for direct causal relationships between moral disengagement and intention, intention and behaviour and moral disengagement and behaviour and an indirect causal effect (0.27, $p < 0.001$) between moral disengagement and behaviour. This suggested that intention acted as a partial mediator of the influence of moral disengagement on behaviour (see the note at the bottom of Figure 6.5 for details of the indirect effect between moral disengagement at Time 1 and future behaviour at Time 2). Cumulatively, moral disengagement and intention accounted for 34% of the variance in behaviour while moral disengagement explained 47% of the variance in intention. These findings offered support for the notions that moral disengagement preceded intention, that intention preceded behaviour, and that moral disengagement preceded behaviour. They also alluded to the impact of intention as a mediator of the relationship between moral disengagement and behaviour indicating that, in addition to a direct causal relationship between these constructs, an indirect relationship existed via the intention construct.

The empirical findings from the test of the model in which intention mediated the relationship between moral disengagement and behaviour secured a place for moral disengagement as a prelude to intention and behaviour in a structural model of social cognitive theory. However, while Bandura (1986) was not clear about whether moral disengagement preceded or followed antisocial behaviour or if it both preceded and followed antisocial behaviour, other theorists

(Festinger, 1957; Sykes and Matza, 1957) posited that the rationalisation of incongruent or deviant behaviour (moral disengagement in social cognitive terms) both preceded (to render antisocial behaviour palatable and, consequently, possible) and followed (to convince the actor of the benefits of the potentially harmful or unacceptable behaviour in order to avoid retroactive self-censure and possible negative judgement from others) antisocial behaviour. The preceding analysis suggested that moral disengagement was likely to temporally precede behaviour. In the next test, the question of whether moral disengagement temporally follows past behaviour will be examined. To test the notion that moral disengagement followed past behaviour but preceded future intention a model in which moral disengagement mediated the relationship between past behaviour and future intention was tested. The results are presented in Figure 6.6.



* p < 0.05
** p < 0.01
*** p < 0.001

Indirect effect T1_BEH ⇨ T2_INT = 0.27***

Model fit statistics: $\chi^2_{(32,\ N=201)} = 61.41$, $p = 0.001$; SRMSR = 0.03; RMSEA = 0.07 [90% CI = 0.04 – 0.09], CFit = 0.12; GFI = 0.94; CFI = 0.98; Critical N = 151; AIC = 107.41

Figure 6.6: Test of moral disengagement as a mediator of past behaviour and future intention

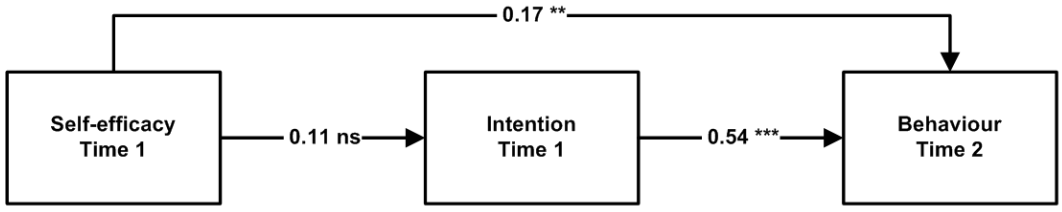
Model fit statistics for the mediation model presented in Figure 6.6 were not unanimous but overall suggested an adequate to good fit to the data. The standardised normalised residuals were normally distributed and did not exceed the absolute value of 1.37 rendering them well within the recommended guidelines suggesting that the items constituting the scales did not contain an unacceptably high degree of error. The modification indices revealed that all the paths were significant and, consequently, that none of them could be deleted in the Wald test to yield a better fitting model. The structural model tested in the mediation analysis was saturated so no additional paths could have been proposed in the Lagrange multiplier test. Thus, there were no notable points of strain. The factor loadings, path coefficients and indicator error variances did not assume illogical or out of range values and were statistically significant at the $p < 0.001$ level. Standardised factor loadings ranged from 0.69 to 0.94 exceeding the 0.50 guideline proposed by Hair et al. (2010, p. 685) confirming that the measured items were strongly and significantly related to their associated latent constructs. Standardised path coefficients ranging from 0.32 to

0.55 were significant, non-trivial and in the predicted direction indicating support for direct causal relationships between past behaviour and subsequent moral disengagement, moral disengagement and future intention, past behaviour and future intention and an indirect causal effect (0.27, $p < 0.001$) between past behaviour and future intention which suggested that moral disengagement acted as a partial mediator of the influence of past behaviour on intention (see the note at the bottom of Figure 6.6 for details of the indirect effect between past behaviour at Time 1 and intention at Time 2). Cumulatively, past behaviour and moral disengagement accounted for 52% of the variance in intention while moral disengagement explained 30% of the variance in intention. These findings offered support for the notions that subsequent moral disengagement followed past behaviour, that moral disengagement preceded future intention, that past behaviour had a direct causal link with future intention and that moral disengagement partially mediated the relationship between past behaviour and future intention.

The preceding analysis suggested that moral disengagement was likely to temporally precede intention and behaviour and that intention was likely to be temporally precedent to behaviour. The next point of interest was to explore the temporal sequence between moral disengagement and proficiency-based self-efficacy. The author believed that the most efficient way to understand moral disengagement's temporal position relative to proficiency-based self-efficacy was to first examine self-efficacy's position relative to intention and behaviour. Then, from the foundation of understanding both moral disengagement and self-efficacy's respective temporal positions relative to intention and behaviour, it would be possible to deduce moral disengagement's likely temporal position in relation to proficiency-based self-efficacy. Thus, an examination of the ancillary social cognitive constructs' temporal positions relative to each other (proficiency-based self-efficacy, intention and behaviour) was a pre-requisite for answering the question about the temporal sequence between moral disengagement and self-efficacy. The temporal sequences between these ancillary social cognitive constructs were examined first, in the section that follows, before the author returned to the question of moral disengagement's temporal relationship with proficiency-based self-efficacy.

6.3.2.2 Research question 2.2: What positions do the ancillary social cognitive constructs of self-efficacy, intention and behaviour occupy in a structural model of social cognitive theory?

Evidence of the mediating effect of intention on the relationship between moral disengagement and behaviour led to the question of whether or not intention also mediated the relationship between self-efficacy and behaviour. This exploration was integral to ultimately understanding the relationship between moral disengagement and self-efficacy in a structural model of social cognitive theory for explaining antisocial behaviour. The results of this analysis are presented in Figure 6.7.



* p < 0.05
** p < 0.01
*** p < 0.001

Indirect effect T1_SE ⇨ T2_BEH = 0.06*ns*

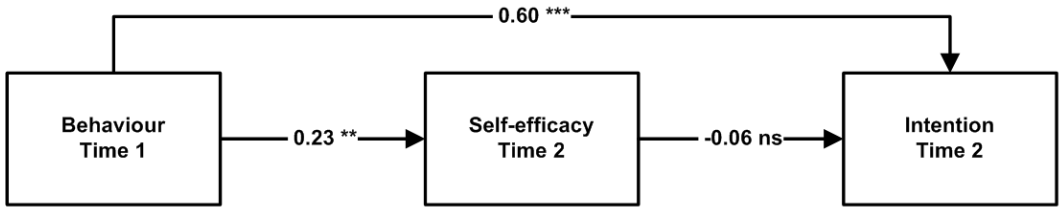
Model fit statistics: $\chi^2_{(24,\ N=201)} = 41.78$, $p = 0.01$; SRMSR = 0.05; RMSEA = 0.06 [90% CI = 0.03 – 0.09], CFit = 0.26; GFI = 0.96; CFI = 0.98; Critical N = 175; AIC = 83.78

Figure 6.7: Test of intention as a mediator of self-efficacy and behaviour

Model fit statistics for the mediation model presented in Figure 6.7 provided mixed evidence which ranged from weak to adequate and acceptable model fit. The distribution of the standardised normalised residuals was slightly asymmetrical which counted as a disadvantage to the viability of the model but estimates did not exceed 1.85 rendering them well within the recommended guidelines suggesting that the items constituting the scales did not contain an unacceptably high degree of error. The modification indices highlighted points of strain in the model. It was recommended that the path from self-efficacy to intention was not significant and could be deleted without negatively affecting model fit and the error variances associated with SE2 and INT3 were also not significant and could have been deleted without impeding model fit. The model tested in the mediation analysis was saturated suggesting that no additional paths could have been proposed in the Lagrange multiplier test. The parameter estimates were logical and within range and the majority of them were statistically significant at the $p < 0.001$ level with the following exceptions: a) the path from self-efficacy to intention [0.11] and the error

covariance associated with SE2 [0.07] were not significant; and b) the error covariance associated with INT3 [0.07] was significant at the $p < 0.05$ level. Standardised factor loadings ranged from 0.63 to 0.97 exceeding the 0.50 guideline proposed by Hair et al. (2010, p. 685) confirming that the measured items were strongly and significantly related to their associated latent constructs. Most of the standardised path coefficients ranging from 0.17 to 0.54 were significant, non-trivial and in the predicted direction. However, a non-significant direct path between self-efficacy and intention [0.11*ns*] was noted together with a non-significant indirect causal effect between self-efficacy and behaviour (see the note at the bottom of Figure 6.7 for details of the indirect effect between self-efficacy at Time 1 and future behaviour at Time 2). Cumulatively, self-efficacy and intention accounted for 34% of the variance in behaviour while self-efficacy explained 1% of the variance in intention. The results of this analysis suggested that, while there was no meaningful causal relationship between self-efficacy and intention, a direct and significant path (albeit it relatively small in magnitude) existed between self-efficacy and behaviour. As before, there was a meaningful direct causal relationship between intention and behaviour. However, intention did not appear to mediate the relationship between self-efficacy and behaviour as it did in the previous test of the indirect relationship between moral disengagement and behaviour. These findings suggested that self-efficacy did not appear to precede intention, that intention preceded behaviour and that self-efficacy preceded behaviour. There was no meaningful indirect influence of self-efficacy on behaviour through the intention construct.

Similarly, evidence of the mediating effect of moral disengagement on the relationship between past behaviour and future intention led to the question of whether or not self-efficacy also mediated this relationship. The results of this analysis are presented in Figure 6.8.



* p < 0.05
** p < 0.01
*** p < 0.001

Indirect effect T1_BEH ⇨ T2_INT = -0.01ns

Model fit statistics: $\chi^2_{(24,\ N=201)} = 26.04$, $p = 0.35$; SRMSR = 0.02; RMSEA = 0.02 [90% CI = 0.00 – 0.06], CFit = 0.85; GFI = 0.97; CFI = 1.00; Critical N = 280; AIC = 68.04

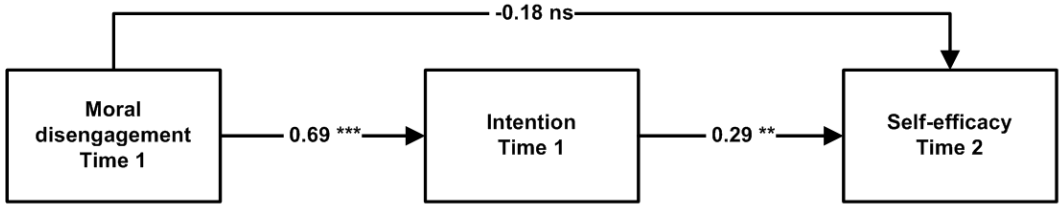
Figure 6.8: Test of self-efficacy as a mediator of past behaviour and future intention

Model fit statistics for the mediation model presented in Figure 6.8 suggested a good fit to the data even though the path between self-efficacy at Time 2 and intention at Time 2 was not significant. The standardised normalised residuals were normally distributed and did not exceed 0.96 rendering them well within the recommended guidelines suggesting that the items constituting the scales did not contain an unacceptably high degree of error. The modification indices hinted at points of strain in the model. The Wald test recommended that the path from self-efficacy to intention was not significant and could be deleted without negatively affecting model fit. The model tested in the mediation analysis was saturated suggesting that no additional paths could have been proposed in the Lagrange multiplier test. The parameter estimates did not assume illogical or out of range values and were statistically significant at the $p < 0.001$ level (except for the path coefficient between the latent constructs of self-efficacy and intention [-0.06] which was not significant and the error variance of INT3 [0.10] which was significant at $p < 0.01$). Standardised factor loadings ranged from 0.79 to 0.95 exceeding the 0.50 guideline proposed by Hair et al. (2010, p. 685) confirming that the measured items were strongly and significantly related to their associated latent constructs. Standardised path coefficients ranging from 0.23 to 0.60 were significant, non-trivial and in the predicted direction indicating support for direct causal relationships between past behaviour and self-efficacy and past behaviour and future intention. However, a non-significant direct path between self-efficacy and intention [-0.06*ns*] was noted together with a non-significant indirect causal effect between past behaviour and future intention (see the note at the bottom of Figure 6.8 for details of the indirect effect between past behaviour at Time 1 and intention at Time 2). Together, past behaviour and self-efficacy accounted for 35% of the variance in intention while self-efficacy explained 5% of the variance in intention. These findings offered support for the notions that past behaviour preceded self-efficacy and that past behaviour preceded future intention. There was no meaningful causal relationship between self-efficacy and intention and there was no indirect influence of past behaviour on future intention through the self-efficacy construct. Thus, as with moral disengagement, self-efficacy appeared to follow past behaviour and to precede future behaviour.

Having established the temporal positions of moral disengagement and self-efficacy relative to intention and behaviour, the author returned to the question of understanding moral disengagement's temporal position relative to proficiency-based self-efficacy. A logical conclusion drawn on the basis of the findings from the mediation models tested in Figures 6.7 and 6.8 was if self-efficacy did not precede intention but preceded future behaviour and if intention preceded behaviour then a reasonable position for self-efficacy was after intention but before

behaviour. Further, if moral disengagement preceded intention then it was probable that instead of mediating the relationship between self-efficacy and behaviour, intention was more likely to mediate the relationship between moral disengagement and self-efficacy. A mediation model depicting that moral disengagement preceded intention which in turn preceded self-efficacy was, therefore, tested and the results of this analysis are presented in Figure 6.9.

Model fit statistics for the mediation model presented in Figure 6.9 unanimously indicated good model fit. The standardised normalised residuals were essentially normally distributed and did not exceed 1.87 rendering them well within the recommended guidelines suggesting that the items constituting the scale did not contain an unacceptably high degree of error.



* p < 0.05
** p < 0.01
*** p < 0.001

Indirect effect T1_MD ⇨ T2_SE = 0.20*

Model fit statistics: $\chi^2_{(32,\ N=201)} = 31.19$, $p = 0.51$; SRMSR = 0.04; RMSEA = 0.00 [90% CI = 0.00 – 0.05], CFit = 0.95; GFI = 0.97; CFI = 1.00; Critical N = 297; AIC = 77.19

Figure 6.9: Test of intention as a mediator of moral disengagement and self-efficacy

The modification indices revealed that all paths were significant with the exception of the direct path between moral disengagement and self-efficacy which could have been deleted according to the Wald test to yield a better fitting model highlighting a point of strain. The model tested in the mediation analysis was saturated suggesting that no additional paths could have been proposed in the Lagrange multiplier test. The factor loadings, path coefficients and indicator error variances, generally, did not assume illogical or out of range values and were statistically significant at the $p < 0.001$ level (except for the path coefficient between the latent constructs of moral disengagement and self-efficacy [-0.18] which was not significant and the path estimate for the relationship between intention and self-efficacy and the error covariance for INT3 which were significant at the $p < 0.01$ level). Standardised factor loadings ranged from 0.63 to 0.96 exceeding the 0.50 guideline proposed by Hair et al. (2010, p. 685) confirming that the measured items were strongly and significantly related to their associated latent constructs. Most of the standardised path coefficients ranging from 0.29 to 0.69 were significant, non-trivial and in the predicted direction and a significant indirect causal effect (0.20, $p < 0.05$) between moral disengagement

and self-efficacy was noted (see the note at the bottom of Figure 6.9 for details of the indirect effect between moral disengagement at Time 1 and proficiency-based self-efficacy at Time 2). Cumulatively, moral disengagement and intention accounted for 4% of the variance in self-efficacy while moral disengagement explained 48% of the variance in intention. These findings offered support for the notions that moral disengagement preceded intention and that intention preceded self-efficacy. They further revealed that there was no direct causal relationship between moral disengagement and self-efficacy but an indirect causal effect [0.20, $p < 0.05$] between these constructs suggested that intention completely mediated the relationship between moral disengagement and self-efficacy. Thus, moral disengagement appeared to temporally precede proficiency-based self-efficacy in this analysis.

6.3.2.3 Summary of temporal precedence findings

The results of the temporal precedence analysis, which sought to secure positions for moral disengagement, intention, self-efficacy and behaviour in a structural model of social cognitive theory, have been consolidated into a proposed structural social cognitive model (see Figure 6.10 in which the causal relationships of interest are referenced with numbers). Many of the causal relationships depicted in the model are based on empirical evidence derived from this analysis. However, some relationships had to be hypothesised based on the empirical findings as it was not possible to test them due to constraints in the research design which accommodated only two assessment waves. For example, the test of the mediation relationship between intention, self-efficacy and behaviour would have required a third assessment wave in which the predictor variable would have been measured at Time 1, the mediator variable at Time 2 and the outcome variable at Time 3.

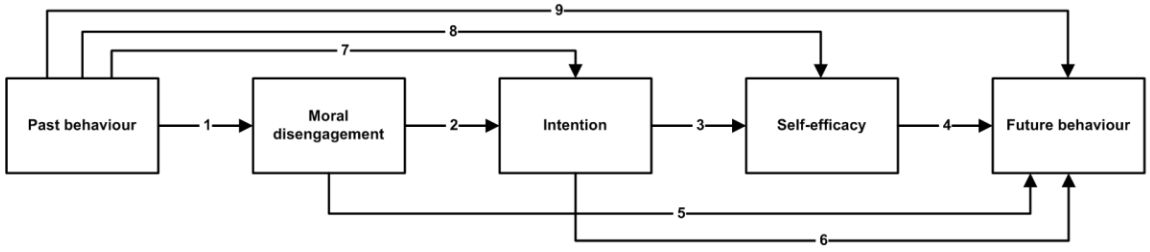


Figure 6.10: Proposed social cognitive model incorporating moral disengagement, self-efficacy, intention and behaviour

Moral disengagement consistently preceded intention (causal relationship 2) and, in addition to preceding future behaviour (causal relationship 5), moral disengagement also appeared to follow past behaviour (causal relationship 1) suggesting that it was potentially activated at two points in a structural model of social cognitive theory including a time-based behaviour variable operationalised as past behaviour and future behaviour. Moral disengagement did not appear to possess a direct relationship with self-efficacy (note the absence of a direct causal path between moral disengagement and self-efficacy in the proposed structural model). However, this relationship appeared to be completely mediated by the intention construct (causal relationships 2 and 3) suggesting that moral disengagement's causal effect on self-efficacy was indirect. This finding supported the conclusion that moral disengagement preceded self-efficacy. Moral disengagement appeared to mediate the relationship between past behaviour and future behaviour (causal relationships 1 and 5). Intention preceded behaviour (causal relationship 6) and mediated the relationship between moral disengagement and behaviour (causal relationships 2 and 6). Self-efficacy preceded behaviour (causal relationship 4) but there was no empirical evidence suggesting that it was antecedent to intention. However, there was evidence for a direct path indicating that self-efficacy followed intention (causal relationship 3). Therefore, self-efficacy followed intention but preceded behaviour suggesting that the relationship between intention and future behaviour appeared to be mediated by self-efficacy (causal relationships 3 and 4). As discussed earlier, this mediation relationship was hypothesised because with only two assessment waves it was not possible to test the impact of intention at Time 1 on self-efficacy at Time 2 and of self-efficacy at Time 2 on behaviour at Time 3. Past behaviour appeared to precede self-efficacy (causal relationship 8) which implied that, like moral disengagement, self-efficacy appeared to be caused by past behaviour and had a causal influence on future behaviour. Past behaviour also appeared to precede intention (causal relationship 7) and there was strong evidence in the cross-lagged analyses involving the behaviour construct that past behaviour had a causal influence on future behaviour (causal relationship 9).

6.4 Conclusion

To recap, this longitudinal investigation explored two primary research questions. The first pertained to the dimensionality of moral disengagement which involved tests of it as a one (a unitary construct with 16 discrete items and a unitary construct with four composite items formed by aggregating the original 16 items based on the four points in the self-regulation process at which the mechanisms of moral disengagement were selectively activated or disengaged), two

(based on the object of dissociation and locus of responsibility interpretations), three (based on a combination of the object of dissociation and locus of responsibility interpretations) and four-factor construct (based on the four points in the self-regulation process at which the mechanisms of moral disengagement were selectively activated or disengaged). These findings yielded some support for a multi-faceted notion of moral disengagement as a three and four-factor construct. Perhaps, with a larger sample more meaningful support for these solutions could have been obtained but with the constraints of a small sample consisting of 201 respondents, these solutions yielded latent factors with meaningful inter-factor correlations pointing instead to the conclusion that moral disengagement was better represented as a unitary construct. However, instead of a straight-forward single-factor structure based on the 16 items loading onto a single latent factor, a more complex unitary factor which represented the four points in the self-regulation process at which Bandura (1986) hypothesised the mechanisms of moral disengagement were selectively activated or disengaged, depicted by four composite items loading onto the single underlying factor, was supported by the data. This interpretation of moral disengagement as a complex unitary construct which acknowledged Bandura's (1986) four-dimensional conceptualisation was best supported in this longitudinal investigation and was adopted in subsequent analyses of the temporal precedence of moral disengagement in relation to self-efficacy, intention and behaviour. The stability of its measurement as a composite unitary construct over time lent further support to its appropriateness as a longitudinal variable. The data supported the dimensionality of self-efficacy, intention and behaviour as unitary constructs.

Tests of longitudinal measurement invariance of these constructs generally attested to the stability of their measurement over time indicating that they too were appropriately rendered into longitudinal variables in the temporal precedence analysis. These findings provided the researcher with confidence to pursue the temporal precedence analysis which constituted the second major focus of this study. Essentially, the aim was to explore the position of moral disengagement in a structural model of social cognitive theory and the positions of self-efficacy, intention and behaviour relative to it. The temporal precedence analysis suggested that moral disengagement preceded intention, self-efficacy and future behaviour but followed past behaviour indicating that it was potentially activated at two points before and after reprehensible behaviour in a structural model of social cognitive theory for explaining antisocial behaviour. Moral disengagement acted as a mediator of the relationship between past behaviour and future intention. Intention preceded self-efficacy and future behaviour but followed past behaviour and emerged as following moral disengagement. Intention acted as a mediator of the relationships between moral disengagement

and future behaviour, moral disengagement and self-efficacy and past behaviour and future behaviour. Self-efficacy preceded future behaviour but, interestingly, followed rather than preceded intention and followed past behaviour. Self-efficacy acted a mediator of the relationship between intention and future behaviour. Since moral disengagement preceded intention and self-efficacy followed it, it was possible to conclude that moral disengagement preceded self-efficacy in this study. The implications of these findings are explored next in the discussion.

CHAPTER 7: DISCUSSION

7.1 Introduction

In this chapter, the findings that emerged in this study will be examined in relation to the specific research questions presented in Chapter 4 to comment on whether or not they offered definitive answers. The two main aims of this study were to examine the dimensionality and interactions of moral disengagement. Secondary to these aims was the investigation of the dimensionality and interactions of three ancillary social cognitive constructs (viz. behaviour, intention and proficiency-based self-efficacy). The author will use the results to answer the questions about moral disengagement's optimal factor structure and the optimal factor structure of the behaviour, intention and self-efficacy constructs. Thereafter, the likely interactions of moral disengagement with behaviour, intention and self-efficacy will be considered, in addition to examining the interactions between these ancillary constructs with each other. The likely meaning of the findings in the context of this study will be explored before moving on to consider their theoretical implications. Finally, the limitations inherent in this study will be discussed and directions for future research will be presented.

7.2. On the dimensionality of moral disengagement

Bandura's (1986) theoretical conceptualisation of moral disengagement as either an eight or four-factor construct provided the initial impetus for clarifying moral disengagement's factor structure. Both these construals alluded to its multi-dimensionality. This lack of clarity was further compounded by the empirical support offered for moral disengagement as a uni-dimensional variable by both Bandura and his colleagues (Bandura et al., 1996a; 2001b) and other researchers (Claybourn, 2011; South & Wood, 2006; Nyati et al., 2010; Stevens et al., 2012; Hyde et al., 2010; Richmond & Wilson, 2008; Paciello et al., 2008; Obermann, 2011a; 2011b; Caprara et al., 2009; Moore et al., 2012; Hymel et al., 2005; Jackson & Sparr, 2005). This raised questions about whether moral disengagement was more meaningful as a multi-dimensional or a uni-dimensional construct. The first set of research questions was oriented towards lending clarity to the issue of moral disengagement's dimensionality.

7.2.1 Research question 1.1: What is the most optimal factor structure for the moral disengagement construct?

Theoretically, moral disengagement was portrayed as an eight-dimensional construct in which the eight mechanisms put forward by Bandura (1986) were characterised as the eight factors that constituted the variable. Bandura (1986) also conceptualised it as a possible four-dimensional construct in which the eight mechanisms were condensed to represent the four points in the self-regulation process at which moral disengagement was likely to be activated (viz. at the point of the behaviour or the behaviour locus, at the point of the consequences or the outcome locus, at the point between behaviour and its consequences or the agency locus and at the point of the victim or the recipient locus). A graphic depiction of how Bandura (1986) envisaged the eight mechanisms were distributed across these four points was presented in Figure 2.2 in Chapter 2. In this study, while it was not feasible to research moral disengagement as an eight-dimensional construct for reasons already discussed in the methodology chapter, it was possible to consider moral disengagement as a four-factor construct, defined exactly as Bandura (1986) proposed. No evidence was found for an underlying four-factor structure, as defined by Bandura (1986), in the exploratory factor analysis using principal components analysis, so the author undertook to verify whether or not a four-factor structure was supported by the data using confirmatory factor analysis.

The four factors were specified *a priori* as follows. Two moral justification items, three euphemistic labelling items and one advantageous comparison item were specified to load onto the first factor which represented moral disengagement at the point of the behaviour or the behaviour locus. Two displacement of responsibility and two diffusion of responsibility items were specified to load onto the second factor which represented moral disengagement between behaviour and its consequences or the agency locus. Three items representing distortion of consequences were specified to load onto the third factor which represented moral disengagement at the point of the consequences of behaviour or the outcome locus. Finally, one item pertaining to attribution of blame and two items pertaining to dehumanisation were specified to load onto the fourth factor representing moral disengagement at the point of the victim or the recipient locus. Model fit statistics revealed that the four-factor model of moral disengagement tended to demonstrate an adequate to good fit to the data. This was supported by the statistical and substantive viability of the parameter estimates, specifically the factor loadings, which indicated that the measured items were strongly and significantly associated with the latent constructs onto

which they were envisaged to load. The items loading onto the latent constructs in the four-factor model appeared to converge adequately suggesting that, on average, more of the variance in the items was explained by the latent structure imposed on them than by error. In addition, the construct reliability estimates exceeded the rule of thumb of 0.70 indicating good internal consistency and implying that the items consistently represented the same underlying construct in each case (Hair et al., 2010). Taken together, these findings seemed to offer support for the interpretation of moral disengagement as a four-dimensional construct defined in accordance with Bandura's (1986) theoretical conceptualisation.

This finding was interesting, but unexpected. Previous empirical tests of moral disengagement as a four-dimensional variable fell into two categories. The first category consisted of studies that tested a variation of Bandura's (1986) four-factor conceptualisation which, while retaining the four-factor structure he proposed in terms of the four points in the self-regulation process at which moral disengagement was likely to be activated, did not include the full set of eight moral disengagement mechanisms and did not include them in the same groupings he proposed (McAlister et al., 2006; Osofsky et al., 2005). In these studies, the researchers found support for their derived four-factor interpretations of moral disengagement which did not match Bandura's (1986) identically. The second category consisted of research that tested a four-factor conceptualisation of moral disengagement defined exactly as Bandura (1986) proposed in social cognitive theory. The study that tested this conceptualisation did not yield an interpretable finding (Caprara et al., 2009). Therefore, it was unexpected that when moral disengagement was tested exactly as Bandura (1986) intended in this study, some support was offered for this interpretation. While no previous research corroborated Bandura's (1986) four-dimensional conceptualisation of moral disengagement exactly as per his definition in the way that this study seemed to, this finding together with insights derived from the empirical research that supported its viability as a four-factor construct, when it was not defined exactly as Bandura (1986) proposed, suggested that the four points in the self-regulation process at which moral disengagement was likely to be activated seemed to be meaningful for understanding its dimensionality.

However, there was a potential problem with the four-factor solution yielded in this analysis which cast doubt on whether it offered the most meaningful interpretation of moral disengagement in this study. The correlations between the four latent factors were significant at the $p < 0.001$ level and relatively high in magnitude as evidenced by the factor covariances which ranged from 0.53 to 0.96 at Time 1 and from 0.61 to 0.98 at Time 2. This implied that the

percentage of variance in each factor that was explained by the variance in each of the other factors (for every pair of factors that was correlated in the four-factor solution), exceeded 25%. In the social sciences, 25%-30% of shared variance is generally considered acceptable for concluding that variables are meaningfully related to each other. In more exact sciences, however, when variables share only 30% of variance in common, this may be considered too low. Due to the large variations in human behaviour which constitutes the subject of analysis in the social sciences, however, the chances of obtaining even a 25%-30% overlap in the variances between variables are rather slim (The Pennsylvania State University, 2012). Hence, the acceptability of this seemingly low range of values for commenting on the extent to which constructs appeared to be meaningfully related in this study of human behaviour using the social cognitive paradigm. This suggested that the latent moral disengagement factors specified in the four-factor solution were, in actuality, similar to each other and could, therefore, all potentially be reflective of the same underlying concept. In other words, it was possible that these four latent factors could equally be represented as a single factor. This interpretation appeared to be more consistent with previous empirical findings which found support for moral disengagement as a unitary construct (Claybourn, 2011; South & Wood, 2006; Nyati et al., 2010; Stevens et al., 2012; Hyde et al., 2010; Richmond & Wilson, 2008; Paciello et al., 2008; Obermann, 2011a; 2011b; Caprara et al., 2009; Moore et al., 2012; Hymel et al., 2005; Jackson & Sparr, 2005) so the author undertook to examine whether moral disengagement was likely to be more meaningful as a uni-dimensional variable.

A uni-dimensional model was constructed in which all sixteen measured items were specified to load onto a single latent factor. Model fit indices generally indicated a poor fit to the data in the uni-dimensional solution. This finding was unexpected, since previous empirical research consistently seemed to support moral disengagement as a unitary construct and because the significant and high intercorrelations between the latent factors in the four-factor solution seemed to suggest that moral disengagement was viable as a single concept. This presented an interesting conundrum. On the one hand, moral disengagement could be meaningfully understood in relation to the four points in the self-regulation process at which Bandura (1986) proposed it was likely to be activated, as indicated in the four-factor solution. On the other hand, the significant and high intercorrelations between the latent factors in this solution suggested that moral disengagement appeared to be just one concept but when this was empirically tested there was no support for the uni-dimensional conceptualisation in which all the items were specified to load onto a single common factor. This led the author to consider a solution which retained moral disengagement's

four-dimensional structure but which also catered for the four factors to load onto a single construct. Thus, a model of moral disengagement as a second-order unitary construct represented by four primary factors was conceptualised and tested as part of a post-hoc analysis.

The test of moral disengagement as a second-order uni-dimensional construct consisting of four primary factors, depicted by items reflecting the mechanisms activated at the four points in the self-regulation process Bandura (1986) proposed, was justified because of the significant and high intercorrelations between the latent factors in the first-order solution of moral disengagement as a four-dimensional construct. If these latent factors were not statistically related to each other then there would have been no justification for pursuing this higher-order factor analysis (Brown, 2006). The four primary factors were specified in exactly the same way as they were in the four first-order factor solution presented earlier. The second-order moral disengagement factor was specified as a single factor onto which the four primary factors loaded. At face value, the model fit statistics indicated comparable levels of fit between the second-order factor models of moral disengagement and the first-order factor models depicting it as a four-factor construct at both Time 1 and Time 2 (Time 1: $\chi^2_{(100,\ N=201)} = 186.69$, $p < 0.0001$, SRMSR = 0.05, RMSEA = 0.07 [90% CI = 0.05 – 0.08], CFit = 0.04, GFI = 0.89, CFI = 0.96, Critical N = 134, AIC = 258.69; Time 2: $\chi^2_{(100,\ N=201)} = 238.83$, $p < 0.0001$; SRMSR = 0.07; RMSEA = 0.08 [90% CI = 0.07 – 0.10], CFit < 0.0001; GFI = 0.86; CFI = 0.94; Critical N = 105; AIC = 310.83). The nested χ^2 test was used to empirically establish if the specification in the higher-order model produced a significant degradation in model fit relative to the first-order factor solution. The outcome of this exploration indicated that the higher-order solution did not result in a significant decrease in model fit which suggested that it was equally good-fitting relative to the first-order factor solution (Time 1: $\chi^2_{diff}(2) = 6.05$ *ns* $_{[p = 0.05]}$; Time 2: $\chi^2_{diff}(2) = 5.43$ *ns* $_{[p = 0.07]}$). The goodness-of-fit results bode well for the acceptability of the second-order factor model and suggested that it offered a reasonable account of the correlations between the first-order factors. The next step was to review the parameter estimates, specifically, the magnitude of the factor loadings between the four primary factors and the single second-order moral disengagement factor (Brown, 2006).

The first-order factors loaded strongly and significantly on the single second-order moral disengagement factor with standardised factor loadings ranging from 0.62 to 0.98 at Time 1. However, there was a problem with the factor loadings at Time 2. The parameter estimate of the first factor's (depicting moral disengagement at the behaviour locus represented by items from the moral justification, euphemistic labelling and advantageous comparison mechanisms) loading

on the second-order moral disengagement factor exceeded 1.00 (1.01) in the Time 2 data and was, therefore, illogical. The factor loadings of the remaining three primary factors ranged from 0.63 to 0.97. However, due to the Heywood case (i.e. the factor loading that exceeded 1.00), the second-order factor solution for moral disengagement at Time 2 was deemed inadmissible. It is possible that the instability and inadmissibility of the solution was the result of the high intercorrelations between the four primary factors (Kline, 2011, p. 362). Thus, even though the second-order factor solution for moral disengagement at Time 1 did not yield a statistically unstable and inadmissible solution, the high intercorrelations between the primary factors were recognised as a potential problem and this problem appeared to have manifested in the analysis of the Time 2 data. Thus, moral disengagement did not seem to be stable as a complex second-order uni-dimensional construct consisting of four primary factors representing the four points in the self-regulation process at which the mechanisms of moral disengagement were likely to be activated.

The author was, therefore, back at square one in terms of resolving the conundrum presented earlier of finding a way to operationalise moral disengagement in a manner that simultaneously respected its four-dimensional character and its proclivity to be a uni-dimensional construct. The empirical research reviewed in this study presented several different strategies for rendering moral disengagement into a uni-dimensional variable. The author examined these approaches to understand whether any of them were geared towards interpreting moral disengagement in this unique way. The first approach researchers used to construe moral disengagement as a unitary construct was based on simple aggregation (Bandura, et al., 1996a; 2001b; Hymel et al., 2005; Hyde et al., 2010; Claybourn, 2011; South & Wood, 2006; Nyati et al., 2010; Stevens et al., 2012; Richmond & Wilson, 2008; Paciello et al., 2008; Obermann, 2011a; 2011b). They either specified that all the moral disengagement items loaded onto a common factor (this was typically observed in the context of confirmatory factor analyses) or they summed or averaged the individual item scores to yield a single moral disengagement score (this was typically observed in the context of path analyses when moral disengagement existed as a predictor in a broader structural model). This approach pitched moral disengagement exclusively as a unitary construct and offered no potential for acknowledging its four-dimensional (or its eight-dimensional) character.

The second approach researchers used to represent moral disengagement as a unitary construct was premised on Bandura's (1986) theoretical interpretations of it either as an eight or a four-dimensional variable. Typically, the moral disengagement scale was constructed with multiple

items reflecting each of the eight mechanisms (Jackson & Sparr, 2005; Moore et al., 2012) or the four points in the self-regulation process at which the eight mechanisms were likely to be activated (Rogers, 2001). Researchers either selected the best performing item to represent each moral disengagement mechanism to produce an eight-item scale (Jackson & Sparr, 2005; Moore et al., 2012) or they aggregated multiple items to yield four composite items representing the four points in the self-regulation process at which the moral disengagement mechanisms were likely to be activated (Rogers, 2001). When moral disengagement was conceptualised as a predictor in a path model or a multiple regression model it was necessary to further aggregate the eight or four composite items to yield a single moral disengagement score. In Rogers' (2001) study, the four composite or parcelled items were aggregated to produce a single moral disengagement score which was used in the multiple regression model to predict criminal computer behaviour. Rogers' (2001) rendition of the moral disengagement construct as a uni-dimensional variable consisting of four aggregated or composite items reflecting the four points in the self-regulation process at which the eight mechanisms were likely to be activated seemed to cater both for the uni-dimensional quality of the construct and for its four-faceted character. Therefore, the author leveraged this conceptualisation to formulate and test an interpretation of moral disengagement as a uni-dimensional construct represented by four composite items. Items measuring moral justification, euphemistic labelling and advantageous comparison were aggregated to form the first composite item representing moral disengagement at the point of the behaviour (the behaviour locus). Items assessing displacement and diffusion of responsibility were parcelled to constitute the second composite item reflecting moral disengagement at the point between behaviour and its consequences (the agency locus). Items measuring distortion of consequences were aggregated to yield the third composite item representing moral disengagement at the point of the consequences of behaviour (the outcome locus). Items assessing attribution of blame and dehumanisation were aggregated to form the fourth composite item reflecting moral disengagement at the point of the victim (the recipient locus). All eight mechanisms of moral disengagement proposed by Bandura (1986) were catered for in this model.

The results for this test of moral disengagement as a single-factor model consisting of four composite items revealed an adequate to reasonably good fit to the data, the absence of localised areas of strain, substantively and statistically viable parameter estimates indicating that the composite items were strongly and significantly related to the underlying latent moral disengagement factor onto which they were specified to load, and evidence of convergent validity which suggested that the four composite items were all measuring the same underlying construct.

In combination, these results alluded to the viability of this interpretation of moral disengagement as a unitary construct built around a four-faceted internal scaffold that acknowledged and remained sensitive to one of Bandura's (1986) theoretical portrayals of the concept. Relative to the uni-dimensional model of moral disengagement tested originally in which all sixteen items were specified to load onto a single latent factor, this uni-dimensional model demonstrated better fit to the data. It could be argued that one of the reasons for this improvement in model fit was due to the fact that it was a less complex model compared to the original uni-dimensional model since moral disengagement was represented by four composite items in this model compared to sixteen items in the original one. All things being equal, less complex (and more parsimonious) models are likely to fit the data better than more complex (and less parsimonious) ones (Marsh & Hau, 1996).

The author was curious about whether the single-factor model of moral disengagement, consisting of four composite items representing the four points in the self-regulation process at which the eight mechanisms were likely to be activated, demonstrated an adequate to reasonably good fit to the data only because it was less complex and, consequently, more parsimonious (there were fewer parameters to estimate). Or was the adequate to reasonable fit of this model to the data linked to the acknowledgement and accommodation of Bandura's (1986) four points in the self-regulation process in the construction of the four composite items that constituted the scale in this interpretation of moral disengagement as a uni-dimensional construct? To answer this question, the author tested an alternative uni-dimensional model of moral disengagement which also consisted of four composite items (Time 1: $\chi^2_{(2,\ N=201)} = 31.64$, $p < 0.0001$, SRMSR = 0.04, RMSEA = 0.27 [90% CI = 0.19 – 0.36], CFit < 0.0001, GFI = 0.93, CFI = 0.95, Critical N = 38, AIC = 47.64; Time 2: $\chi^2_{(2,\ N=201)} = 19.42$, $p < 0.0001$, SRMSR = 0.03, RMSEA = 0.21 [90% CI = 0.13 – 0.30], CFit = 0.0007, GFI = 0.95, CFI = 0.97, Critical N = 62, AIC = 35.42) as part of a post-hoc analysis. In the alternative model, however, the composite items were not derived by aggregating the original sixteen items in terms of the four points in the self-regulation process at which the moral disengagement mechanisms were likely to be activated. Instead, each composite item was constituted by aggregating four randomly selected moral disengagement items from the original pool of sixteen items representing all eight of Bandura's (1986) moral disengagement mechanisms.

The author compared the fit of these competing models using the Akaike's information criterion (AIC) which allowed for the comparison of rival models which were not nested but which were

tested using the same data (Schermellah-Engel, Moosbrugger & Müller, 2003). Typically, models with lower AIC values are regarded as better fitting. (Schermellah-Engel et al., 2003). The AIC values for the uni-dimensional model of moral disengagement which reflected Bandura's (1986) four points in the self-regulation process in the four composite items were AIC = 17.27 (Time 1) and AIC = 22.56 (Time 2). The AIC values for the alternative uni-dimensional model in which each of the four composite items was constructed by randomly aggregating four items from the sixteen item pool were AIC = 47.64 (Time 1) and AIC = 35.42 (Time 2). The models based on these uni-dimensional conceptualisations of moral disengagement were equally parsimonious and equally complex. Thus, the lower AIC values yielded for the uni-dimensional conceptualisation that respected Bandura's (1986) four-faceted interpretation of the construct suggested that this model was more meaningful and viable than the alternative model which also conceptualised moral disengagement as a uni-dimensional construct measured with four composite items but in this case, the items were randomly assigned and were not aggregated on the basis of any specific structural or theoretical interpretation. This finding was noteworthy because it illustrated that when two equally complex and parsimonious interpretations of moral disengagement were tested, the one that retained and respected the four points in the self-regulation process, at which the mechanisms were likely to be activated, emerged as having a better fit to the data. This was suggestive of the possibility that the four-factor conceptualisation of moral disengagement proposed by Bandura (1986) could add some measure of value and meaning to understanding the structural properties of the construct as one that was essentially uni-dimensional but which cohered internally as a four-faceted variable in terms of the four points in the self-regulation process that Bandura (1986) envisaged the mechanisms were likely to be activated. Thus, the uni-dimensional construal of the moral disengagement construct represented by four composite items, each reflecting one of the four points in the self-regulation process at which the mechanisms were likely to be activated, appeared to offer the best expression of its dimensionality in this study.

This conclusion was consistent with the general finding in previous empirical research that moral disengagement was most viable as a uni-dimensional construct (Caprara et al., 2009; Moore et al., 2012; Hymel et al., 2005; Jackson & Sparr, 2005). Specifically, however, the results of this investigation supported the uni-dimensional conceptualisation of moral disengagement that acknowledged and retained Bandura's (1986) theoretical interpretation of it as a four-faceted concept in its internal structure and construction (the four composite items that constituted moral disengagement were formed by aggregating the eight mechanisms in terms of the four points in the self-regulation process at which they were likely to be activated). This specific finding was

consistent with the results obtained by Boardley and Kavussanu (2008), Jackson and Sparr (2005) and Moore et al. (2012) who also found support for uni-dimensional conceptualisations of moral disengagement that had their basis in Bandura's (1986) theoretical presentation of the construct, but there was one important difference. While this study found support for a uni-dimensional construal of moral disengagement premised on Bandura's (1986) four-pronged interpretation of the concept, previous research found support for uni-dimensional construals premised on Bandura's (1986) eight-pronged interpretation (Jackson & Sparr, 2005; Moore et al., 2012; Boardley & Kavussanu, 2008). Thus, while previous empirical research recognised the utility of Bandura's (1986) eight-faceted conceptualisation as the theoretical basis informing the internal structure and construction of a uni-dimensional rendition of the scale, the findings in this study highlighted the utility of Bandura's (1986) four-faceted conceptualisation (which included all eight moral disengagement mechanisms distributed according to the four points in the self-regulation process at which they were likely to be activated) as the theoretical basis informing the internal structure and construction of a uni-dimensional rendition of the scale. These findings suggested that the uni-dimensional conceptualisations of moral disengagement as a four and eight-faceted construct based on Bandura's (1986) theoretical interpretations of it appeared to contribute meaningfully to the understanding of its dimensionality.

Interestingly, though, this study did not find support for the uni-dimensional conceptualisation of moral disengagement in which all sixteen items were specified to load onto a single latent factor in a confirmatory factor model. This was contrary to the findings of Caprara et al. (2009) who tested a confirmatory factor model in which 32 moral disengagement items were specified to load onto a single latent factor. Their findings indicated adequate model fit and an interpretable solution for this uni-dimensional conceptualisation while confirmatory tests of moral disengagement as an eight-factor, four-factor and second-order unitary construct with four primary factors yielded ill-defined solutions (Caprara et al., 2009). In fact, the findings in this study appeared to be almost opposite to the findings by Caprara et al. (2009). They found support for a uni-dimensional conceptualisation of moral disengagement that was derived using the simple aggregation strategy discussed earlier but discounted the conceptualisation of moral disengagement as a four-factor construct on the basis of uninterpretable statistical results. In this study, the author found some support for moral disengagement as a four-factor construct based on adequate to good model fit indices but found less support for the uni-dimensional conceptualisation of moral disengagement derived using the same simple aggregation strategy that Caprara et al. (2009) employed.

Thus, the author tested two uni-dimensional conceptualisations of moral disengagement in this study. The first was derived using a simple aggregation strategy in which all sixteen items in the scale were specified to load onto a single latent factor. The second was premised on Bandura's (1986) theoretical conceptualisation of moral disengagement as a four-faceted construct in which the four points in the self-regulation process, at which the mechanisms were likely to be activated, were represented as the four composite items that constituted the scale. Each composite item was constructed by aggregating items representing the mechanisms that clustered together at each point in the self-regulation process. The findings yielded support for the second uni-dimensional conceptualisation of moral disengagement, but not for the first. Only one other study reviewed in this investigation appeared to test variants of both these conceptualisations of moral disengagement as a uni-dimensional construct (Moore et al., 2012) alongside other interpretations of it as an eight-dimensional variable and a second-order uni-dimensional construct comprised of eight primary factors.

First, Moore et al. (2012) tested the uni-dimensionality of two moral disengagement scales (one consisting of 24 items and the other consisting of 16 items) by specifying models in which all the items loaded onto a single latent moral disengagement factor in each instance. This conceptualisation appeared to correspond to the one derived using the simple aggregation strategy in this study. Next, the researchers tested the uni-dimensionality of an eight-item moral disengagement scale. In this analysis, they selected the best item representing each moral disengagement mechanism and constructed a uni-dimensional model in which these eight items were specified to load onto a single latent factor. Although this model was also technically derived using the simple aggregation strategy, this conceptualisation of moral disengagement as a uni-dimensional construct was explicitly rooted in Bandura's (1986) theoretical conceptualisation of it as an eight-faceted construct. Therefore, this conceptualisation appeared to align with the second uni-dimensional conceptualisation of moral disengagement tested in this study because it too had its roots in Bandura's (1986) theoretical interpretation. However, whereas this study tested a uni-dimensional conceptualisation that was based on Bandura's (1986) four-dimensional interpretation of the construct, Moore et al. (2012) tested a uni-dimensional conceptualisation based on Bandura's (1986) theoretical portrayal of moral disengagement as an eight-faceted construct in which the eight discrete moral disengagement mechanisms, proposed in social cognitive theory, were represented in the eight items that constituted the scale. Moore et al. (2012) concluded that moral disengagement was more viable as a single-factor construct defined in terms of Bandura's (1986) eight-pronged conceptualisation as opposed to a single-factor

construct that did not acknowledge or accommodate either of Bandura's (1986) theoretical conceptualisations. Therefore, the findings in this study appeared to be consistent with Moore et al.'s (2012) insofar as the uni-dimensional conceptualisation of moral disengagement, that had its roots in Bandura's (1986) four-faceted theoretical presentation, appeared to be more viable than the uni-dimensional conceptualisation derived using a simple aggregation strategy, which had no explicit theoretical basis.

However, the author was cautious to accept that moral disengagement was most viable as a uni-dimensional construct that acknowledged and retained Bandura's (1986) theoretical interpretation of it as a four-faceted concept, as the final conclusion about its dimensionality in this study, without further investigation. Previous empirical research alluded to the possibility that moral disengagement could possess an underlying two-factor structure based on the findings of exploratory factor analyses (Jackson & Sparr, 2005; Hymel et al., 2005). However, this possibility was not formally explored using confirmatory factor analyses in these studies and was ultimately discounted in favour of uni-dimensional conceptualisations based exclusively on the findings of the exploratory factor analyses. The author discussed some of the problems associated with arriving at conclusions about factor structure on the basis of exploratory factor analyses alone in the research questions chapter. The main problem with this approach is that, while exploratory factor analysis is useful for identifying the possible structure underlying a set of variables, it does not offer a robust statistical means to test the probability that a particular factor structure is supported or confirmed by the data, while confirmatory factor analysis does (Cramer, 2003). While it is important to gain insight into the patterns underlying a set of variables, which exploratory factor analysis provides, this is an inadequate foundation on which to base firm conclusions about the factor structure of these variables. Confirmatory factor analysis is an essential next step to statistically assess the viability of a specific hypothesised factor structure by examining whether or not it yields a good fit to the data. The author wanted to test the possibility of moral disengagement as a two-factor solution using confirmatory factor analysis to examine if there was any utility in this interpretation, as alluded to in the empirical studies by Jackson and Sparr (2005) and Hymel et al. (2005), before accepting the uni-dimensional conceptualisation that was supported in this study.

The author noted in Chapter 4 that the two-factor interpretation of moral disengagement that emerged from the studies by Jackson and Sparr (2005) and Hymel et al. (2005) shared a common fracture-line. Items in the moral disengagement scale representing mechanisms that individuals

leveraged to externalise responsibility for their antisocial behaviour, by projecting accountability onto external parties and institutions and onto the victims of their detrimental conduct, appeared to cluster together to form one factor which the author termed external locus of responsibility. Items from displacement and diffusion of responsibility, attribution of blame and dehumanisation were envisaged to congregate in this factor. It is important to note as a quick aside that neither Jackson and Sparr (2005) nor Hymel et al. (2005) included items that loaded onto dehumanisation in their scales, but if they had, the author believes that these items would have congregated with the others in the external locus of responsibility factor. The remaining items in the moral disengagement scale, which represented the moral justification, euphemistic labelling, advantageous comparison and distortion of consequences mechanisms, appeared to cluster together to form the second factor which the author labelled internal locus of responsibility. The common thread binding these mechanisms together was that they tended to be leveraged when individuals implicitly accepted personal responsibility for their part in enacting detrimental behaviour and attempted to cognitively reconstrue their actions and minimise or distort the consequences of these actions to render their harmful behaviour more palatable to themselves by attempting to convince themselves that their behaviour was in the service of beneficial and honourable ends and that it did not cause harm to others. In other words, individuals leveraged these mechanisms when, at a very fundamental level, they understood that they were personally responsible for engaging in antisocial behaviour and actively tried to make themselves feel better (and retain a positive self-image) by cognitively reconstruing their detrimental actions and the likely detrimental consequences emanating from these actions as benign. Although Bandura (1986) did not offer a theoretical interpretation of moral disengagement that recognised it as a two-dimensional construct based on internal versus external locus of responsibility in social cognitive theory, the author believes that this interpretation was conceptually meaningful and reasonable. Therefore, the author undertook to test moral disengagement as a two-dimensional construct in this study to examine if this alternative multi-dimensional factor structure could offer a viable interpretation of the construct. This was important since previous research discounted this two-dimensional interpretation on the basis of exploratory factor analysis alone without endeavouring to confirm the two-factor structure using confirmatory factor analysis. This study attempted to fill this gap.

The findings of the exploration of moral disengagement as a two-dimensional construct, based on the locus of responsibility interpretation, revealed a generally poor fit of the model to the data (see Table 6.16 in Chapter 6). Thus, the two-dimensional conceptualisation of moral

disengagement alluded to in exploratory factor analyses in previous empirical research was not supported using confirmatory factor analysis in this study. On the basis of this confirmatory test, the author was satisfied to abandon this conceptualisation of moral disengagement based on the locus of responsibility interpretation given the poor fit of this two-dimensional model to the data.

A review of the exploratory factor analysis findings in this study suggested two additional alternative multi-dimensional conceptualisations of moral disengagement that had no theoretical basis in Bandura's (1986) social cognitive theory and no empirical support in any of the previous research reviewed. However, like the alternative two-dimensional conceptualisation discussed above, these interpretations seemed to be conceptually meaningful and reasonable. The first was a two-dimensional conceptualisation of moral disengagement in which the items seemed to split in a slightly different way compared to the two-dimensional interpretation presented earlier. Items from the moral justification, euphemistic labelling, advantageous comparison, displacement of responsibility, diffusion of responsibility and distortion of consequences mechanisms clustered together to form the first factor while items from the attribution of blame and dehumanisation mechanisms clustered together to form the second factor. The mechanisms forming the second factor were unique for several reasons. First, the victims or recipients of injurious behaviour featured explicitly in the rationalisations used to dissociate from negative behaviour and its consequences in the attribution of blame and dehumanisation mechanisms while the victims were not explicitly acknowledged or referenced in the rationalisations of detrimental behaviour using the other six moral disengagement mechanisms. Second, there seemed to be an explicit negative sentiment towards the victims that motivated the activation of the attribution of blame and dehumanisation mechanisms. Individuals tended to rationalise their injurious behaviour towards others by characterising victims as being deserving of bad treatment, negative outcomes and general misfortune. The activation of these mechanisms seemed to be driven by an underlying sense of feeling wronged by the recipients towards whom the detrimental behaviour was targeted, and by the associated need, experienced by the actors, to retaliate to right the wrongs that they perceived were enacted against them, by meting out harmful behaviour of their own. The motivation for the activation of the six moral disengagement mechanisms that clustered together to form the first factor seemed to be characterised by a notable absence of negative sentiment or affect. In fact, they appeared to be "affect-neutral". Thus, the mechanisms representing the two factors in this alternate two-dimensional interpretation of moral disengagement essentially appeared to split according to whether or not the victims were present as the objects of dissociation in the justifications individuals used to distance themselves from injurious behaviour

and its negative consequences. If the victims were referenced, then the mechanisms seemed to be grounded in negative affect but if the victims were not included as the objects of dissociation, then the mechanisms tended to be "affect-neutral". The author referred to this as the object of dissociation interpretation of moral disengagement.

The confirmatory test of this two-factor model of moral disengagement (based on the object of dissociation interpretation) revealed that it demonstrated a better fit to the data than the two-factor solution based on the locus of responsibility interpretation. Therefore, of these two-dimensional interpretations of moral disengagement tested in this study, the one based on the object of dissociation interpretation appeared to be more meaningful. However, a review of the intercorrelation between the first (mechanisms characterised by the absence of the victim as the object of dissociation) and second factor (mechanisms characterised by the presence of the victim as the object of dissociation) revealed that each one accounted for more than 30% of the variance in the other indicating sufficient overlap between the two factors to conclude that they were meaningfully related. Since these factors formed part of the moral disengagement construct in this study, this level of shared variance led the author to conclude that they essentially represented the same underlying construct and that there was potentially no real value to be derived from treating them as separate factors (similar to what was observed in the four-factor solution presented earlier). However, unlike with the four-factor solution, it was not possible to test this two-dimensional interpretation of moral disengagement as a higher-order factor consisting of one second-order uni-dimensional factor and two primary first-order factors since this solution would have been under-identified and, consequently, not possible to meaningfully test using higher-order confirmatory factor analysis. It was also not possible to test it as a composite unitary scale represented by two parcelled sets of items (with each aggregated set of items depicting one factor) as this too would have yielded an under-identified solution which would not have been meaningful to pursue using confirmatory factor analysis. For the purposes of this study, therefore, the two-factor interpretation of moral disengagement based on the object of dissociation interpretation was not pursued further, but would warrant further investigation in future research.

The second alternative multi-dimensional conceptualisation of moral disengagement suggested by the results of the exploratory factor analysis in this study, was a three-dimensional conceptualisation. Like the two-factor solution based on the object of dissociation interpretation, this one also had no theoretical basis in Bandura's (1986) social cognitive theory and did not receive empirical support in the previous empirical research reviewed. An examination of the

manner in which the mechanisms split into three distinct factors revealed that this interpretation could be understood by merging the locus of responsibility and the object of dissociation interpretations presented above to understand moral disengagement as a potential three-dimensional construct. Items loading onto moral justification, euphemistic labelling, advantageous comparison and distortion of consequences clustered together to form the first factor. The second factor consisted of items from the displacement and diffusion of responsibility mechanisms while the third factor was comprised of items from the attribution of blame and dehumanisation mechanisms of moral disengagement. A critical analysis of this split revealed that the first factor represented mechanisms that implied an internal locus of responsibility and the notable absence of the victim as the object of dissociation and the consequent absence of negative affect or sentiment underlying their activation. The second and third factors consisted of mechanisms that implied an external locus of responsibility. Within this group of mechanisms there was a further split into two distinct factors, but this time the basis for the split was the object of dissociation. Attribution of blame and dehumanisation (which clustered together into the third factor) were characterised by the presence of the victim as the object of dissociation and explicit negative sentiment motivating their activation while displacement and diffusion of responsibility (which clustered together into the second factor) were characterised by the notable absence of the victim as the object of dissociation and the consequent absence of negative affect underlying their activation.

The confirmatory test of moral disengagement as a three-factor solution yielded results that were almost identical to those obtained when it was tested as a four-dimensional construct. The high intercorrelations between the three factors suggested that they shared a sufficient proportion (> 30%) of their variance in common and could, therefore, be regarded as a single construct rather than as a three-dimensional variable. Although the three-dimensional solution appeared to be conceptually plausible when the locus of responsibility and object of dissociation interpretations of moral disengagement were combined to explain how the construct could meaningfully split into three factors, the author opted to pursue a uni-dimensional interpretation derived from Bandura's (1986) four-dimensional conceptualisation of the construct rather than one derived from the novel three-dimensional conceptualisation that made its debut in this study. The reasons for this were two-fold. First, given that the fit of the three and four-factor models of moral disengagement were almost identical, it was difficult to definitively comment on which conceptualisation was more meaningful for understanding the construct. In fact, all things considered, they appeared to be equally meaningful. Given that the four-factor conceptualisation

had a strong theoretical foothold in Bandura's (1986) social cognitive theory, the author opted to pursue a uni-dimensional conceptualisation derived from it as opposed to one derived from a potentially viable three-dimensional conceptual interpretation that had no explicit theoretical basis. Second, the confirmatory test of the uni-dimensional conceptualisation of moral disengagement based on Bandura's (1986) four-factor interpretation yielded an over-identified measurement model which was desirable and offered a meaningful insight into model fit. A confirmatory test of the uni-dimensional interpretation based on the conceptualisation of moral disengagement as a three-factor construct, on the other hand, would have yielded a just-identified model. Tests of model fit in just-identified models are not meaningful because they always resolve to fitting the data perfectly (Kline, 2011). Thus, it would not have been possible to explore the fit of a uni-dimensional conceptualisation of moral disengagement derived from the three-dimensional interpretation presented above (by translating the factors into three parcelled or composite items) in a meaningful way and, importantly, it would not have been possible to meaningfully compare this model with the other conceptualisations of moral disengagement tested in this study (specifically the uni-dimensional conceptualisation of moral disengagement derived from the theoretical four-factor interpretation) on the basis of model fit. The uni-dimensional conceptualisation of moral disengagement derived from Bandura's (1986) four-dimensional construal of the construct, therefore, had the advantage of a strong theoretical foundation and over-identification of the measurement model compared to the absence of an explicit theoretical basis and a just-identified measurement model which characterised the uni-dimensional conceptualisation of moral disengagement derived from the three-factor construal based on a combination of the locus of responsibility and object of dissociation interpretations. These advantages culminated in it being selected over the uni-dimensional conceptualisation derived from the three-dimensional interpretation of moral disengagement in this study.

The exploration of moral disengagement as a four-factor and a uni-dimensional construct based on previous theoretical conceptualisations and empirical treatments led to the conclusion that it was likely to be most optimal as a uni-dimensional construct consisting of four facets representing the four points in the self-regulation process at which the mechanisms were likely to be activated. However, before adopting this as the most optimal construal of the moral disengagement construct, the author undertook to examine if there were any unique multi-dimensional construals that had not received previous theoretical or empirical support, which could be used to better understand moral disengagement's dimensionality. In this examination the author considered moral disengagement as a two and three-factor construct based on what were

deemed to be conceptually meaningful splits of the mechanisms into two and three factors. There were two meaningful ways to split Bandura's (1986) eight mechanisms into two factors. The first was prompted by findings from exploratory factor analyses which suggested that the mechanisms split on the basis of the locus of responsibility interpretation. The second two-factor interpretation emerged from the exploratory factor analysis in this study which suggested that the mechanisms split into two factors based on the object of dissociation interpretation. The three-factor solution emerged when the locus of responsibility and object of dissociation interpretations were combined to yield three groups of moral disengagement mechanisms. Tests of the models based on these alternative conceptualisations of moral disengagement did not yield fruitful results. The two-factor solution based on the locus of responsibility interpretation of the construct, which appeared to receive some support in the empirical research (Jackson & Sparr, 2005; Hymel et al., 2005), demonstrated a poor fit to the data in this study resulting in its abandonment as a possible interpretation of moral disengagement. The two-factor solution based on the object of dissociation interpretation and the three-factor solution based on an amalgamation of the locus of responsibility and object of dissociation interpretations, which both received some empirical support in the exploratory factor analysis in this study, did not hold up in the confirmatory tests of their factor structure due to the high intercorrelations between the factors representing moral disengagement in these solutions. This suggested that moral disengagement was likely to be just one construct rather than a multi-dimensional construct. The three and four-factor solutions of moral disengagement indicated a comparable fit to the data and the author had established earlier that the uni-dimensional conceptualisation in which all sixteen items were specified to load onto a single factor offered a poor fit to the data. Therefore, the author considered an alternative uni-dimensional conceptualisation derived from either the three-factor or the four-factor interpretations (as the two-factor interpretation rendered into a uni-dimensional model using either higher-order factor analysis or parcelling of items to yield two composite items representing each factor would have resulted in an under-identified confirmatory factor model which would not have been possible to test). For the reasons discussed above, a uni-dimensional interpretation of moral disengagement derived from the three-factor conceptualisation of the construct would have introduced theoretical and measurement challenges. Therefore, the author selected the uni-dimensional conceptualisation of moral disengagement derived from Bandura's (1986) theoretical construal of the construct as four-faceted as the most meaningful interpretation of its dimensionality in this study.

In the discussion that follows the author will consider what this result could mean. At each measurement point in this study individuals were presented with a set of moral disengagement items that reflected all eight mechanisms proposed by Bandura (1986). Thus, at each data collection point individuals had the option to leverage all eight mechanisms or only some of them to justify software piracy behaviour. Further, they had the option to either leverage the same sub-set of moral disengagement mechanisms at each measurement point or to leverage one sub-set of moral disengagement mechanisms at Time 1 and a different sub-set of mechanisms at Time 2 to rationalise software piracy behaviour. This study found that individuals opted to leverage moral disengagement mechanisms from all four points in the self-regulation process, at which Bandura (1986) envisaged that the eight mechanisms were likely to operate, each time they completed the questionnaire.

This finding alluded to the possibility that moral disengagement was an end-to-end cognitive process that individuals either engaged in or did not undertake at all to justify antisocial behaviour at a single point or at multiple points in time, rather than a sequential process that evolved and unfolded over time. When it was activated, it seemed that individuals leveraged mechanisms from all four points in the self-regulation process to produce rationalisations for software piracy behaviour and together, these justifications constituted the singular cognitive act of morally disengaging at each measurement point. Bandura's (1986) original presentation of the points in the self-regulation process at which the mechanisms of moral disengagement were likely to be activated, alluded to the possibility of a temporal sequence underlying the unfolding of the moral disengagement process. However, in a paper by McAlister et al. (2006), in which Bandura was cited as an author, this confusion was cleared up when it was explicitly stated that the graphic depiction of the self-regulation process and the points at which the moral disengagement mechanisms were likely to be activated (see Figure 2.2 in Chapter 2) merely offered a schematic representation of the loci at which the mechanisms operated and did not constitute a sequential process model. This suggested that moral disengagement was never intended to be a sequential phenomenon activated at four separate points in the self-regulation process that ultimately culminated in individuals' distancing themselves from their antisocial conduct and its harmful consequences. In support of this interpretation, this study found that moral disengagement appeared to be activated as an end-to-end, stand-alone cognitive process at each measurement point and that all the facets of moral disengagement seemed to be invoked collectively by the actor in the quest to justify software piracy behaviour each time it was activated.

7.2.2 Research question 1.2: Is the structure of moral disengagement invariant over time?

The second objective of this study was to explore moral disengagement's interactions with other social cognitive variables (specifically behaviour, intention and proficiency-based self-efficacy). In order to accomplish this aim it was necessary to analyse causal relationships between these constructs over time in order to comment on temporal sequences. Therefore, to answer the second main research question, this study was reliant on a longitudinal research design. Brown (2006) noted that in the context of longitudinal research it was advisable to test longitudinal measurement invariance to get a sense of the extent to which a construct was temporally equivalent across time. Although this was not commonly implemented in empirical studies (a study by Paciello et al. (2008) *did* consider the longitudinal measurement invariance of the moral disengagement construct), the author undertook to establish the longitudinal measurement invariance of moral disengagement to comment on the stability of its measurement (in terms of its factor structure and factor loadings) over time. This examination of longitudinal measurement invariance of moral disengagement as a composite unitary construct, derived from Bandura's (1986) four-dimensional theoretical interpretation, revealed that it was stable over time. This finding suggested that when moral disengagement was activated at Time 1 its factor structure and factor loadings were equivalent to when it was activated at Time 2. This implied that all four facets of moral disengagement were invoked collectively by the actor to justify software piracy behaviour at Time 1. At Time 2 (between three and four months later) it appeared that all four facets of moral disengagement were invoked again in an equivalent fashion (the factor structure and factor loadings were stable over time) in relation to software piracy behaviour. This suggested that moral disengagement is unlikely to be a once-off phenomenon. In other words, it is likely to be activated to justify a specific behaviour at one point in time and then it may be invoked again to explain the same behaviour (either past or future) at another point in time. The three to four month time-lag separating the measurement points of moral disengagement in this study did not produce any notable changes in the factor structure or factor loadings of the construct, meaning that the way in which individuals morally disengaged at Time 1 to justify software piracy behaviour appeared to be equivalent to the way in which they morally disengaged at Time 2 to justify software piracy behaviour again three to four months later. Therefore, each time individuals contemplate engaging in antisocial behaviour (even if they contemplated or actually engaged in the same antisocial behaviour previously), it may be necessary to invoke the moral disengagement process. At each point it appears that all four facets of moral disengagement

are collectively invoked as an end-to-end moral disengagement process to rationalise the antisocial behaviour in question.

One possible explanation for this finding is that moral disengagement is likely to assume this format (i.e. a uni-dimensional construct consisting of four composite items representing the four points in the self-regulation process at which the eight mechanisms are likely to operate) whenever it is leveraged for the purpose of pirating software. Therefore, when it was measured at two separate points in time for the purpose of justifying software piracy behaviour in this study, it appeared to take on the same form at each measurement point. While the present study suggested that the format of moral disengagement for rationalising software piracy behaviour appeared to be consistent across time, it is the task of future research to comment on the extent to which this format is generalisable to other studies examining software piracy behaviour and to other investigations of antisocial behaviour, in general. It is possible that moral disengagement could assume different formats when it is used to explain software piracy in other studies as well as other types of antisocial behaviour. Longitudinal measurement invariance explorations of the moral disengagement construct in these contexts would be necessary to comment on whether or not the form moral disengagement takes when it is measured at multiple points is likely to be consistent over time.

Another possible explanation for the stability and consistency in the measurement of moral disengagement over time in this study is that individuals could have been rationalising software piracy behaviour for years before completing the questionnaires. They could have passed through multiple iterations of justifying software piracy behaviour in the past before encountering the questions in this study. Therefore, at the two points of completing the questionnaires it is possible that they had already formed stable attitudes and perceptions about the reasons for why software piracy behaviour was justifiable and were simply re-stating these consistent views at both measurement points. This could explain why the format and nature of the justifications used at Time 1 were equivalent to those used at Time 2. The theoretical implications of the findings pertaining to moral disengagement's dimensionality and longitudinal invariance will be presented later in this chapter.

7.3 On the interactions between moral disengagement, behaviour, intention and self-efficacy

Bandura (1986) offered no clarity about how the social cognitive constructs interacted with each other in predictable ways to explain human behaviour in social cognitive theory (Prochaska, 2006). This raised important questions about the interactions between the social cognitive constructs, in general, and between moral disengagement and the other social cognitive constructs, in particular. It also raised important questions about the consistency of these interactions across a wide range of behavioural contexts, in general, and within the domain of software piracy behaviour, in particular. This lack of clarity about the manner in which the social cognitive constructs were likely to interact in structural models of social cognitive theory served as the impetus for the second set of research questions pertaining to the interactions between moral disengagement and behaviour, intention and self-efficacy, and of the interactions of self-efficacy, intention and behaviour with each other. The findings that emerged from the investigation of the second set of research questions examined in this study will be discussed next.

7.3.1 What position does moral disengagement occupy in a structural model of social cognitive theory?

The author's first attempt to answer this research question involved testing a series of cross-lagged panel models to comment on the likely temporal sequences between specific pairs of constructs. To answer the first part of this research question the temporal sequences between moral disengagement and behaviour, moral disengagement and intention and moral disengagement and self-efficacy were examined. To answer the second part of this research question the author examined the temporal sequences between intention and behaviour, self-efficacy and intention, and self-efficacy and behaviour. The second part of the research question will be discussed in detail later in section 7.3.2. It was hoped that tests of these cross-lagged panel models would yield an answer to the question of which construct in each pair exerted the first causal impact on the other in the context of a longitudinal analysis. However, after two separate attempts at testing cross-lagged panel models in this study, the author emerged with only one usable result. It seemed that moral disengagement temporally preceded intention. The cross-paths in the model (in the second attempt) were statistically significantly different from one another which implied that they were not equivalent. The path with the larger significant standardised parameter estimate represented the direction of the first probable causal impact and in this case it

was between moral disengagement at Time 1 and intention at Time 2 (see Figure 6.4 in Chapter 6). The previous empirical research reviewed in Chapters 2 and 3 revealed that moral disengagement consistently preceded intention (Bandura et al., 1996a; 2001b; Lucidi et al., 2008; Zelli et al., 2010; LaRose & Kim, 2007; Garbharran & Thatcher, 2009; 2011; Wentzell, 2008) so this finding appeared to be consistent with previous empirical research.

Two possible reasons were cited in the previous chapter for why the cross-lagged panel models did not yield cross-paths that were statistically significantly different from one another to enable the author to comment on possible temporal sequences between the pairs of constructs considered in this study. The first was that the three to four month time-lapse between the two data collection points was insufficient to allow the causal effects between the variables to unfold. The second was that the interaction between each pair of constructs was perfectly reciprocal suggesting that each variable was equally the cause of and was caused by the other which did not permit a clear answer to the question of which variable exerted the first causal impact on the other. Thus, the question about the temporal sequences between the constructs could not be answered with the cross-lagged models alone.

The next consideration was whether moral disengagement temporally preceded future behaviour or if it was only activated after behaviour had been enacted (i.e. it came after past behaviour). As mentioned earlier, the cross-lagged panel models did not yield meaningful results to help answer this question of temporal precedence. Therefore, the author undertook to explore it in the context of a mediation model. Theoretically, intention was pitched as temporally precedent to behaviour in the theories of reasoned action (Fishbein & Ajzen, 1975), planned behaviour (Ajzen, 1991), interpersonal behaviour (Triandis, 1977), and social cognitive theory (Bandura, 1986). Thus, even though this conclusion was not empirically supported in the cross-lagged panel analysis, the author assumed that it was likely to hold true in this study. In conjunction with the insight that moral disengagement was likely to precede intention, the assumption that intention preceded behaviour yielded a mediation model in which moral disengagement preceded intention which, in turn, preceded behaviour. The assumption was that, since moral disengagement was likely to temporally precede intention and intention was likely to temporally precede behaviour, moral disengagement was likely to temporally precede behaviour. The model tested intention as a mediator between moral disengagement and behaviour to comment on the causal sequences between these constructs in the context of a longitudinal analysis (see Figure 6.5 in Chapter 6). The findings offered support for the notions that moral disengagement preceded intention, that

intention preceded behaviour, and that moral disengagement preceded behaviour. They also alluded to the impact of intention as a partial mediator of the relationship between moral disengagement and behaviour indicating that, in addition to a direct causal relationship between these constructs, an indirect relationship existed via the intention construct. Thus, moral disengagement appeared to temporally precede future behaviour.

Previous empirical research corroborated the finding that moral disengagement preceded future behaviour (Bandura et al., 2001b; Lucidi et al., 2008; Zelli et al., 2010). Thus, the hypothesis that, since moral disengagement preceded intention and intention preceded future behaviour, moral disengagement was likely to precede future behaviour, was supported in this study. However, the temporal sequence envisaged between past behaviour and moral disengagement was inconsistent in the previous research reviewed in the earlier chapters. Bandura et al. (1996a) used past behaviour as the ultimate dependent variable in a cross-sectional study designed to explain delinquent and aggressive behaviour. This resulted in a confusing temporal sequence which suggested that moral disengagement (measured in the present and tapping into current perceptions) preceded behaviour (measured concurrently with moral disengagement), which was actually a measure of behaviour that had already occurred at some point in the past. This was impossible and illogical. In a subsequent longitudinal study (Bandura et al., 2001b) the same untenable sequence was observed between moral disengagement and transgressive behaviour at Time 1. The author noted in Chapter 2 that a more reasonable temporal sequence would have been for past behaviour (that had already occurred) to be depicted as preceding moral disengagement (measured in the present) because, in reality, current perceptions were likely to be influenced by behaviour that had already occurred in the past. Thus, a more reasonable temporal sequence between past behaviour and moral disengagement was that past behaviour was likely to precede moral disengagement rather than the other way round. A study by Jacobs et al. (2012) and another by Garbharran and Thatcher (2011) in the software piracy domain depicted and tested past behaviour as temporally precedent to moral disengagement. In this study, the notion that past behaviour temporally preceded moral disengagement which, in turn, was temporally precedent to future intention was tested in a mediation model (see Figure 6.6 in Chapter 6). The findings suggested that past behaviour (measured as behaviour at Time 1) temporally preceded moral disengagement at Time 2, moral disengagement at Time 2 temporally preceded future intention measured at Time 2, and past behaviour at Time 1 temporally preceded future intention at Time 2. The findings also suggested that there was an indirect relationship between past behaviour and future intention. In other words, moral disengagement appeared to partially mediate the

interaction between past behaviour and future intention. Thus, in relation to the intention and behaviour variables, moral disengagement appeared to temporally precede future intention and future behaviour and past behaviour appeared to temporally precede future moral disengagement and future intention.

The next question the author undertook to answer pertained to the temporal sequence between moral disengagement and self-efficacy. To answer this question the temporal sequences between self-efficacy and intention and self-efficacy and behaviour were first explored before proceeding to the next logical step of analysing the likely temporal sequence between moral disengagement and self-efficacy, based on an understanding of how each of these constructs individually interacted with intention and behaviour (past and future). The test of the mediation model in which self-efficacy preceded intention and future behaviour (see Figure 6.7 in Chapter 6) revealed that while there was a direct and significant causal relationship between self-efficacy at Time 1 and future behaviour at Time 2, the causal path between self-efficacy and intention was not significant. This suggested that while self-efficacy appeared to precede future behaviour, it did not seem to temporally precede intention. This was an interesting finding because it differed from the way in which moral disengagement interacted with intention in this study and because it deviated from the findings pertaining to self-efficacy's relationship with intention yielded in the previous research examined in this thesis (Bandura et al., 2001b; Lucidi et al., 2008; Zelli et al., 2010).

Self-efficacy emerged as temporally precedent to intention in studies by Bandura et al., (2001b), LaRose and Kim (2007), Garbharran and Thatcher (2009; 2011) and Wentzell (2008). However, it is important to note that self-efficacy was not consistently defined and operationalised in these studies. The author believes that these differences may have played a part in yielding inconsistent results pertaining to its temporal sequences with intention, behaviour and, ultimately, with moral disengagement. In this study, self-efficacy was defined purely as proficiency-based self-efficacy and, importantly, the proficiency it tapped into was directly related to the proficiency to engage in the antisocial behaviour that constituted the dependent variable (viz. software piracy behaviour). Bandura et al. (2001b) operationalised self-efficacy as a multi-faceted construct with a proficiency-based and a self-regulatory component (and a third social self-efficacy component which was not of interest in this study). The proficiency-based aspect of self-efficacy tapped into academic self-efficacy. However, the ultimate dependent variable was transgressive behaviour. Thus, there was a disconnect between the behavioural domain for which the self-efficacy beliefs

were elicited and the behavioural domain in which the dependent variable existed. The researchers reported an inverse relationship between self-regulatory efficacy and academic self-efficacy and transgressive behaviour, and alluded to the possibility that these two facets of self-efficacy appeared to temporally precede both intention and behaviour. The structural model did not cater for a direct causal relationship between these facets of self-efficacy and intention but rather envisaged an indirect interaction between them and intention through the moral disengagement construct. The implication of this, therefore, was that both proficiency-based and self-regulatory self-efficacy temporally preceded moral disengagement (Bandura et al., 2001b).

These findings highlighted that self-efficacy (neither in its proficiency-based academic self-efficacy format nor in its self-regulatory form) did not appear to meaningfully interact directly with intention when it was positioned as temporally precedent to it in a structural model for explaining antisocial behaviour. This was consistent with the finding in the present study which suggested that proficiency-based self-efficacy (which tapped into perceptions of one's efficacy to engage in software piracy behaviour) did not share a direct relationship with intention to pirate software when it was tested as temporally precedent to it. This raised the question about whether self-efficacy did, in fact, temporally precede intention in this study or whether a temporal sequence in which self-efficacy followed intention in the predictive equation was likely to be more meaningful for explaining software piracy behaviour. This question will be re-visited later in the discussion. First, the author wanted to understand self-efficacy's temporal sequence relative to past behaviour and future intention. The test of a mediation model in which behaviour at Time 1 preceded self-efficacy at Time 2 which, in turn, preceded intention at Time 2 (see Figure 6.8 in Chapter 6) revealed that there was a meaningful relationship between past behaviour and self-efficacy, suggesting that past software piracy behaviour meaningfully determined future efficacy beliefs pertaining to proficiency to pirate software. Once again, however, the findings revealed that there was no significant relationship between self-efficacy measured at Time 2 and intention at Time 2 when self-efficacy was positioned as temporally precedent to intention. This finding reinforced the possibility that, perhaps, self-efficacy did not precede intention at all.

The findings, thus far, suggested that self-efficacy preceded future behaviour and followed past behaviour just like moral disengagement did, but unlike moral disengagement, there was no evidence to suggest that self-efficacy meaningfully temporally preceded intention. Based on the previous discussion, intention temporally preceded future behaviour leaving only one reasonable possibility for self-efficacy's temporal sequence relative to intention. In the context of explaining

software piracy behaviour in this study, it seemed that self-efficacy temporally followed intention and preceded future behaviour. In other words, self-efficacy appeared to mediate the relationship between intention and future behaviour. The test of a mediation model in which moral disengagement at Time 1 preceded intention at Time 1 which, in turn, preceded self-efficacy at Time 2 (see Figure 6.9 in Chapter 6) revealed that there was a meaningful causal relationship between intention and self-efficacy, which suggested that intention temporally preceded self-efficacy. As before, there was a meaningful causal path between moral disengagement and intention, which suggested that moral disengagement temporally preceded intention and, consequently, self-efficacy. Interestingly, there was no meaningful direct relationship between moral disengagement and self-efficacy. Instead, the impact of moral disengagement on self-efficacy appeared to be completely (as opposed to partially) mediated through the intention construct with a significant indirect effect reported between moral disengagement at Time 1 and self-efficacy at Time 2.

The findings that intention preceded self-efficacy which, in turn, preceded future behaviour and, consequently, that moral disengagement preceded self-efficacy (because it was demonstrated earlier that moral disengagement preceded intention) were unique to this study. Previous research consistently treated self-efficacy as a precursor to intention and/or future behaviour (Bandura et al., 2001b; LaRose & Kim, 2007; Garbharran & Thatcher, 2009; 2011; Wentzell, 2008) and there was also evidence that self-efficacy was treated as temporally precedent to moral disengagement (Bandura et al., 2001b; Wentzell, 2008; Farnese et al., 2011). Bandura et al. (2001b) proposed that proficiency-based academic self-efficacy and self-regulatory efficacy both preceded intention in their longitudinal analysis aimed at explaining transgressive behaviour. Bandura et al. (2001b) operationalised self-efficacy as a multi-faceted construct that consisted of both proficiency-based and self-regulatory components. It was noted in Chapter 2 that there was a fundamental disconnect between the behavioural domain in which the ultimate dependent variable (viz. transgressive behaviour) existed and the behavioural domain for which self-efficacy beliefs were elicited (viz. academic performance) in Bandura et al.'s (2001b) study. This raised the question about whether the same temporal sequence between proficiency-based self-efficacy and intention, behaviour and moral disengagement would hold (i.e. that self-efficacy temporally preceded moral disengagement, intention and future behaviour) when the self-efficacy beliefs being measured were aligned exactly with the ultimate dependent variable as was the case in this study (in which self-efficacy beliefs pertained to individuals' perceptions of their ability to pirate software and the ultimate dependent variable was software piracy behaviour).

A key difference between the present study and Bandura et al.'s (2001b) longitudinal analysis was the manner in which self-efficacy was defined and operationalised. It was noted earlier that Bandura et al. (2001b) conceptualised self-efficacy as a multi-faceted construct and included self-regulatory and proficiency-based components. Self-regulatory efficacy was supported as temporally precedent to moral disengagement, intention and behaviour (Bandura et al., 2001b). This seemed to make sense. If individuals initially activated self-regulatory efficacy and were able to effectively regulate their own behaviour (i.e. high self-regulatory efficacy) then there was a good chance that it would not be necessary for them to subsequently activate the moral disengagement process because they would not allow themselves to consider antisocial behavioural options in the first place as a result of their high self-regulatory efficacy and would, consequently, not need to morally disengage from detrimental behaviour and its consequences. The lower propensity for moral disengagement would lead to a reduced likelihood of forming intentions to engage in antisocial behaviour which would ultimately lead to a reduced possibility of engaging in transgressive conduct. Thus, it seemed reasonable that self-regulatory efficacy was pitched as temporally precedent to moral disengagement and, consequently, to intention and future behaviour. Wentzell (2008) also found support for a temporal sequence in which self-regulatory efficacy was envisaged as preceding moral disengagement and, consequently, intention (which was the ultimate dependent variable).

In the present study, self-efficacy was defined purely as proficiency-based self-efficacy and, importantly, the proficiency it tapped into was directly related to the proficiency to engage in the antisocial behaviour that constituted the dependent variable (viz. software piracy behaviour). The proficiency-based element of Bandura et al.'s (2001b) self-efficacy construct, interestingly, tapped into academic self-efficacy while the ultimate dependent variable was transgressive behaviour. In the light of this operationalisation of the proficiency-based self-efficacy construct, the inverse relationship between academic self-efficacy and transgressive behaviour seemed to make sense because the efficacy beliefs being tapped into were in relation to a prosocial behaviour and the dependent variable was an antisocial behaviour. The alignment of the proficiency-based self-efficacy beliefs measured in this study to the same behavioural domain in which the dependent variable existed (viz. software piracy behaviour) led the author to expect a positive relationship between self-efficacy and behaviour.

While it seemed reasonable for self-regulatory efficacy to precede moral disengagement, intention and behaviour, the reasons for the temporal precedence between proficiency-based self-

efficacy and moral disengagement, intention and future behaviour were not as clear. Thus, the author was uncertain about whether or not this temporal sequence would generalise to other studies in which the proficiency-based self-efficacy measure was aligned to assess individuals' perceptions of their capabilities to engage in transgressive behaviour. In other words, the author was unclear about whether individuals would first free themselves from the self-constraints imposed by their own internal standards by morally disengaging and then evaluate their proficiency to engage in transgressive behaviour or if they would first assess their perceived capability to execute transgressive behaviour before morally disengaging from their internal standards as Bandura et al. (2001b) suggested.

In this study, the findings suggested that individuals morally disengaged first before evaluating their proficiency to enact the antisocial behaviour in question, and that proficiency-based self-efficacy followed intention but preceded future behaviour. While Bandura et al. (2001b) suggested that proficiency-based self-efficacy preceded moral disengagement, this study proposed that moral disengagement preceded proficiency-based self-efficacy. While Bandura et al. (2001b) envisaged that proficiency-based self-efficacy preceded intention, this study found that intention was likely to precede proficiency-based self-efficacy. Unlike Bandura et al. (2001b) who found support for proficiency-based self-efficacy temporally preceding moral disengagement, this study found support for moral disengagement temporally preceding proficiency-based self-efficacy. A common finding in both Bandura et al.'s (2001b) study and this one, was that proficiency-based self-efficacy was envisaged as a prelude to future behaviour. A possible reason for the discrepancies between Bandura et al.'s (2001b) temporal sequences involving proficiency-based self-efficacy and the temporal sequences supported in this study could have been related to the unusual disconnect between the behavioural domain of the proficiency-based self-efficacy measure and the behavioural domain of the ultimate dependent variable in Bandura et al.'s (2001b) study and the alignment of the behavioural domains tapped into by the proficiency-based self-efficacy measure and the behaviour measure (viz. software piracy behaviour) in this study.

Bandura et al. (2001b) proposed that proficiency-based self-efficacy preceded moral disengagement. It is important to note that even though they employed a longitudinal research design, they did not test the interaction between self-efficacy and moral disengagement at two separate points in time to comment on their temporal position relative to each other. Bandura et al. (2001b) only appeared to measure transgressive behaviour at the second measurement point

and it is this that rendered their study longitudinal. It seems, therefore, that the temporal position of self-efficacy as preceding moral disengagement in their structural model was based more on underlying theoretical considerations than on empirical support. In the present study, the author considered and tested the possibility that self-efficacy preceded moral disengagement in the way that Bandura et al. (2001b) suggested. To this end, a mediation model in which proficiency-based self-efficacy at Time 1 preceded moral disengagement at Time 2 which, in turn, preceded intention at Time 2 was constructed and tested as part of a post-hoc analysis. The results of this test revealed a strong causal relationship between moral disengagement and intention (0.67, $p < 0.001$) but this was the only significant causal path noted in the model. The direct path between self-efficacy and moral disengagement was small in magnitude and not significant (0.02*ns*) and the direct causal path between self-efficacy and intention (0.08*ns*) appeared to share the same characteristics. These findings suggested that the interaction between self-efficacy, moral disengagement and intention in which moral disengagement mediated the relationship between proficiency-based self-efficacy and intention, as suggested by Bandura et al. (2001b), did not hold up in this study. While moral disengagement appeared to comfortably precede intention, self-efficacy did not seem to be as comfortable as a construct that temporally preceded intention. In fact, this study demonstrated that self-efficacy was more comfortable interacting directly with intention when it temporally followed it rather than when it temporally preceded it. Further, no comfortable direct relationship between proficiency-based self-efficacy and moral disengagement was noted in this study. This too was a point on which it differed from Bandura et al.'s (2001b) study. Bandura et al. (2001b) reported a statistically significant (-0.18, $p \leq 0.05$) causal path between proficiency-based academic self-efficacy and moral disengagement. In this study, however, a statistically significant relationship between self-efficacy and moral disengagement, regardless of which variable came first temporally, eluded the author. In cross-sectional studies by LaRose and Kim (2007) and Garbharran and Thatcher (2011) both moral disengagement and proficiency-based self-efficacy were included as predictors in structural models of software piracy intention. However, neither of these studies proposed an explicit causal relationship between moral disengagement and proficiency-based self-efficacy. This could have been due to the fact that, as the findings in this study seemed to suggest, these constructs did not interact directly with each other in a meaningful way.

The author was prepared to concede that there may not be a direct meaningful relationship between moral disengagement and proficiency-based self-efficacy but did not rule out the possibility that there may well be a meaningful indirect relationship between them. It was

discussed earlier that moral disengagement preceded intention but that self-efficacy did not. Therefore, the author constructed and tested a mediation model in which moral disengagement preceded intention which, in turn, preceded self-efficacy (see Figure 6.9 in Chapter 6). The findings revealed statistically significant, direct and meaningful relationships between moral disengagement and intention, and between intention and self-efficacy. While the direct relationship between moral disengagement and self-efficacy was not significant, the indirect relationship between them, in which the effect of moral disengagement on self-efficacy was mediated (in this case, completely mediated) through the intention construct, was significant and meaningful. This finding supported the indirect causal influence of moral disengagement on proficiency-based self-efficacy through the intention construct, suggesting that moral disengagement preceded self-efficacy.

To rule out the possibility that the relationship between self-efficacy at Time 1 and moral disengagement at Time 2 could be mediated through the intention construct, the author tested a mediation model in which self-efficacy at Time 1 preceded intention at Time 1 which, in turn, preceded moral disengagement at Time 2 in the context of a post-hoc analysis. The results of testing this mediation model revealed a non-significant relationship between self-efficacy and intention (0.11*ns*) and a non-significant effect between self-efficacy at Time 1 and moral disengagement at Time 2 (-0.05*ns*). Importantly, the indirect relationship between self-efficacy and moral disengagement through the intention construct was not significant (0.06*ns*). This suggested that self-efficacy was unlikely to share a meaningful direct relationship with intention when it was temporally precedent to it, that it did not interact directly with moral disengagement and that it was unlikely to share a meaningful indirect relationship with moral disengagement which was mediated by the intention construct either. This was significant because when moral disengagement was conceptualised as temporally precedent to intention and self-efficacy, even though there was no meaningful direct relationship between these constructs, the indirect relationship between moral disengagement and self-efficacy through intention, was. This suggested that while moral disengagement seemed to temporally precede self-efficacy in the context of an indirect interaction that was mediated through the intention construct, there was no support for a situation in which self-efficacy preceded moral disengagement either directly or indirectly in this study. Although it was not possible to empirically test, given that there were only two measurement points in the present study, the author hypothesised (based on the findings that self–efficacy appeared to follow intention but to precede future behaviour) that ultimately, proficiency-based self-efficacy would potentially mediate the relationship between intention and

future behaviour. Three assessment waves would have been necessary to test the causal sequences between intention, self-efficacy and behaviour. In the first assessment wave, intention to pirate software would have been measured. Self-efficacy would have been measured at Time 2 to capture the sequence of intention (Time 1) temporally preceding self-efficacy (Time 2). Then, future behaviour would have been measured at Time 3 to capture the sequence of future behaviour (Time 3) temporally following self-efficacy (Time 2) in the causal sequence.

To recap, the set of likely temporal sequences between the social cognitive constructs in this study which were graphically captured in a model (Figure 6.10 in Chapter 6), is presented again below in Figure 7.1 to give context to the summary that follows.

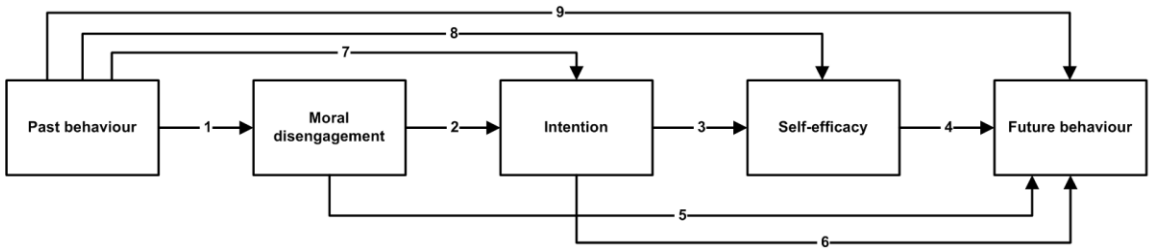


Figure 7.1: Proposed social cognitive model incorporating moral disengagement, self-efficacy, intention and behaviour

The following important points about the temporal sequences between moral disengagement, proficiency-based self-efficacy, intention, and behaviour (past and future) appeared to emerge from this discussion:

- Moral disengagement temporally followed past behaviour and temporally preceded intention, future behaviour and proficiency-based self-efficacy;
- Self-efficacy temporally followed past behaviour and temporally preceded future behaviour;
- Self-efficacy temporally followed intention (unlike moral disengagement which temporally preceded intention in this study);
- There was no empirical evidence to support a direct relationship between moral disengagement and proficiency-based self-efficacy but an indirect relationship in which the causal impact of moral disengagement on proficiency-based self-efficacy was mediated through the intention construct was noted; and
- Finally, the hypothesis that self-efficacy was likely to mediate the relationship between intention and future behaviour was proposed.

The next step was to consider what these findings pertaining to the temporal sequences between moral disengagement, behaviour (past and future), intention and proficiency-based self-efficacy could mean. This will be discussed next.

In the context of pirating software, the findings from this study suggested that individuals who participated in the research were likely to morally disengage from software piracy behaviour and its consequences, suggesting that at a very fundamental level they tended to perceive this behaviour as socially and, perhaps, morally unacceptable. There is another camp consisting of individuals who believe that software piracy does not constitute a socially and morally unacceptable behaviour and who, consequently, do not believe that it is necessary to activate the moral disengagement mechanisms in order to justify this behaviour. Essentially, they don't believe that it is wrong to pirate software and, as a result, the act of software piracy does not conflict with their internal moral standards. These individuals would be unlikely to deem it necessary to activate the moral disengagement process to render software piracy behaviour palatable by reconstruing it as a behaviour that was honourable and in the service of noble ideals. The fact that the participants in this study did tend to leverage moral disengagement (all participants reported agreement with at least some of the moral disengagement items in the questionnaire indicating that they recognised the utility of these items and the mechanisms they represented for justifying software piracy behaviour) suggested that they did not generally fall into the camp of individuals who did not perceive software piracy behaviour as socially and morally unacceptable. This suggested that the assumption the author used as the starting point for this study (i.e. that software piracy was likely to be perceived and treated as an instance of antisocial behaviour that would induce the activation of the moral disengagement process) seemed plausible. Thus, the context in which this study was conducted (viz. software piracy) appeared to support the activation of the moral disengagement process and the elicitation of the moral disengagement mechanisms so that they could be productively researched.

Individuals seemed to only allow themselves to form intentions to pirate software after morally disengaging from the behaviour and its consequences and they only tended to move on to engage in software piracy after morally disengaging, forming the intention to pirate software and assessing their level of proficiency to engage in the behaviour (the role of self-efficacy in the predictive equation will be discussed separately below). The position of proficiency-based self-efficacy as temporally following intention in this study suggested that intention did not immediately precede behaviour as had been theoretically conceptualised in the theories of

reasoned action and planned behaviour, for example. It seemed that an extra step was required after forming the intention, to assess whether individuals believed they possessed the efficacy to pirate software. In other words, if they believed they possessed high proficiency to pirate software, then their intention was likely to be translated into behaviour but if, after morally disengaging and forming the intention to pirate software, they believed that they did not have the skills and competence to enact the behaviour, then they were likely to abandon the quest to pirate software. The possible mediating role of self-efficacy after intention but before future behaviour suggested that not all individuals who morally disengaged and formed the intention to pirate software actually moved on to engage in software piracy behaviour, depending on the facilitating or impeding role of their self-efficacy beliefs as one possible enabler or impediment affecting the translation of intention to behaviour. Thus, even though this study was not able to empirically test self-efficacy as a mediator between intention and future behaviour (for which three assessment waves would have been required to satisfy the conditions for testing meaningful causal sequences – i.e. intention at Time 1, self-efficacy at Time 2 and future behaviour at Time 3), the author hypothesised (based on the empirical tests that were possible between moral disengagement at Time 1, intention at Time 1 and self-efficacy at Time 2 and between behaviour at Time 1, self-efficacy at Time 2 and intention at Time 2) that self-efficacy was likely to play a facilitating or impeding mediating role in the process of translating intention into behaviour.

The fact that past behaviour temporally preceded moral disengagement and that moral disengagement, in turn, temporally preceded future behaviour suggested that moral disengagement is not likely to be a once-off event when it is activated in relation to pirating software. Individuals are likely to morally disengage before forming new intentions to pirate software. In addition, after pirating software at some point in the past, they are likely to re-activate the moral disengagement process at a future time to justify software piracy behaviour. It is not clear whether this subsequent moral disengagement is geared towards reaffirming the reasons for why their past software piracy behaviour was still justifiable or whether it was oriented towards justifying engaging in software piracy again in the future. It could possibly be a bit of both but this study was not designed to lend clarity to this issue. Whether individuals morally disengaged twice to justify the same act of software piracy, first before and then after they executed the behaviour, or whether they morally disengaged once before engaging in the first enactment of the behaviour and then morally disengaged again before engaging in a second enactment of it, the findings of this study suggested that moral disengagement is not only activated once in relation to a specific category of behaviour.

In addition, the findings suggested that the form moral disengagement took when it was activated the first and second time in this study was essentially the same in terms of the equivalence of its factor structure and factor-loadings at each measurement point (as evidenced by the results of the test of longitudinal measurement invariance). This suggested that the nature of the moral disengagement construct activated at both points in time did not appear to have altered. Thus, individuals seemed to draw on all four categories of mechanisms to rationalise software piracy behaviour at each point and tended to activate moral disengagement as a single process which they engaged in from end to end at Time 1 before repeating the same process at Time 2. This finding could have meant that the three to four month time-lag between the two measurements of moral disengagement in this study was insufficient to produce a change in the form that it took when it was measured over time and that, in fact, individuals referenced and reported on the same activation of moral disengagement twice during their completion of the questionnaires.

Another possibility was that individuals invoked two activations of moral disengagement to justify software piracy behaviour at different points in time and the format that each activation took was essentially the same as the other. If the two activations of moral disengagement were to justify the same act of software piracy both before and after it had been enacted then it could have meant that the format moral disengagement took to justify behaviour before it was enacted was the same as the format it took when it was activated to justify the same behaviour after it had been executed. If, however, each activation of moral disengagement was used to justify a separate future opportunity to pirate software, then it meant that the form moral disengagement took at different points in time for justifying two separate instances of the same behaviour was equivalent. This means that even though individuals would already have gone through the process of morally disengaging, forming the intention to pirate software and perhaps, even following through to pirate software at some point in the past, when they encountered another opportunity to engage in the same behaviour at a future time, they activated the moral disengagement process again (which took the same format as the one they activated earlier) and proceeded to form the intention to pirate software and perhaps, even to follow-through and engage in software piracy behaviour for a second time.

Thus, the format of moral disengagement did not appear to change over time but this study was not designed to comment on other possible ways in which moral disengagement could have differed across multiple measurement points or activations. For example, this study was not geared towards commenting on whether or not the processing time for morally disengaging, when

moral disengagement was activated at subsequent occasions in relation to a specific antisocial behaviour, was shorter than the time it took for individuals to work through the moral disengagement process for the very first time in relation to the same behaviour. It is possible that when moral disengagement is activated for the first time to justify an antisocial behaviour, the time it takes to work through the moral disengagement process is likely to be longer than when it is activated at subsequent times to justify the same behaviour. It is also possible that each subsequent activation takes less and less time until eventually the moral disengagement process becomes either a fleeting conscious consideration or a wholly automatic phenomenon (i.e. habit) that may no longer operate as a conscious process (Hartmann & Vordeer, 2010).

This study was also not designed to comment on whether the cognitive processing resources required to morally disengage the second time round (and at all subsequent times, for that matter) were equivalent or possibly less intense than those utilised when moral disengagement was leveraged for the very first time. It is possible that individuals would have already made sense of, and worked through, the essential elements of the decision-process regarding why it was acceptable to engage in a behaviour that deviated from their internal standards when they morally disengaged the first time (which could either have been at Time 1 in this study or even at a time before that). Therefore, it may not have been necessary to work through an intense equivalent decision-making process again at subsequent points when they leveraged moral disengagement. Instead, at these subsequent points, they may simply have checked that their reasons for believing that software piracy was justifiable still held true and confirmed that they still essentially felt the same way about it as they did the first time they invoked the moral disengagement process in relation to software piracy. It was not within the scope of this study to comment on whether the time it took for individuals to work through the moral disengagement process at different points in time for justifying two separate instances of the same behaviour was equivalent. It was also out of scope to comment on whether the intensity of the decision-making process (in terms of the cognitive processing resources utilised) was equivalent at both points in time. The possibility did exist that, even though the format of moral disengagement appeared to be equivalent at both measurement points, moral disengagement could have varied on other counts (i.e. time taken to morally disengage and cognitive processing resources used to morally disengage) that were not considered in this study.

This study found that self-efficacy temporally followed past behaviour and preceded future behaviour. This suggested that heightened levels of proficiency-based self-efficacy were likely to

be a direct outcome of successfully engaging in software piracy behaviour at some point in the past. These heightened levels of proficiency-based self-efficacy, in turn, were likely to be instrumental in determining whether or not individuals engaged in software piracy behaviour again at some point in the future, with individuals who reported higher levels of self-efficacy being more likely to pirate software in the future. Similarly, if individuals had not successfully pirated software in the past (either by choice or due to a lack of relevant skills), then they were likely to experience reduced levels of proficiency-based self-efficacy which could either have led to a decision to denounce software piracy in favour of prosocial options or which could have informed their inability to translate intention to pirate software into action. The relationship between past behaviour and self-efficacy and between self-efficacy and future behaviour in this study was an example of a reciprocal relationship as envisaged by Bandura (1986) in social cognitive theory. The same reciprocal relationship was noted between moral disengagement and behaviour. Past behaviour preceded moral disengagement which, in turn, preceded future behaviour.

In addition, self-efficacy seemed to be instrumental in determining whether or not individuals, who morally disengaged from the act of pirating software and its consequences, translated their intention to pirate software into software piracy behaviour. This study found evidence that moral disengagement temporally preceded intention but that self-efficacy temporally followed intention. This suggested that after individuals distanced themselves from software piracy behaviour and its negative consequences and formed the intention to pirate software, they undertook to evaluate their level of proficiency to enact this behaviour. If they judged that their proficiency-level to pirate software was high, then it was likely that their intention would be translated into software piracy behaviour. However, if they perceived their proficiency to pirate software to be low, then it was less likely that the intentions they formed to pirate software would be translated into software piracy behaviour. Thus, it was likely that self-efficacy acted as a mediator between intention to pirate software and software piracy behaviour. This finding implied that individuals were prepared to morally disengage and form intentions to pirate software before establishing whether or not they possessed the self-efficacy to successfully execute the behaviour. In other words, they did not base their decision about whether or not to morally disengage and whether or not to form intentions to pirate software on an estimation of their proficiency to successfully execute the behaviour. This only became a consideration after moral disengagement had been activated and intentions had been formed. It also implied that intentions to pirate software did not automatically become translated into software piracy behaviour and that there appeared to be an intervening

process (in the form of the assessment of proficiency-based self-efficacy), which influenced whether or not software piracy intention would be converted into software piracy behaviour. Thus, evaluations of proficiency-based self-efficacy were likely to act as one possible factor that influenced whether or not the intention to pirate software would be translated into software piracy behaviour, with higher levels of proficiency-based self-efficacy beliefs leading to a higher propensity to pirate software.

7.4 Theoretical implications of this study

This study was designed to explore two main gaps in social cognitive theory pertaining to the moral disengagement construct. The first was to understand moral disengagement's dimensionality and the second was to examine moral disengagement's temporal sequence in relation to other social cognitive constructs (specifically, behaviour, intention and proficiency-based self-efficacy) in a structural model of social cognitive theory. In this section the author will discuss the contributions this study made to fill these theoretical gaps.

Bandura's (1986) theoretical conceptualisation of moral disengagement as an eight or four-dimensional construct served as the origin of the confusion about what constituted a meaningful factor structure for moral disengagement in the context of social cognitive theory. This uncertainty was further exacerbated by Bandura et al.'s (1996a; 2001b) portrayal of moral disengagement as a uni-dimensional construct in which all the items in the scale loaded onto a single factor. But the confusion did not end here. After conceptualising moral disengagement as a uni-dimensional construct based on empirical findings (Bandura et al., 1996a; 2001b), Bandura and his colleagues (McAlister et al., 2006) set out to test an interpretation of moral disengagement as a four-dimensional construct defined according to the four points in the self-regulation process at which the eight mechanisms were likely to operate. This exploration resurrected the possibility that moral disengagement could well be a multi-dimensional construct as opposed to a uni-dimensional one. Thus, Bandura's (1986) theoretical conceptualisation of moral disengagement as a multi-dimensional construct, his subsequent acceptance of it as a uni-dimensional one based on the findings of empirical research (Bandura et al., 1996a; 2001b), and his further empirical test of the possibility that moral disengagement could be a four-dimensional construct (McAlister et al., 2006), even after his previous empirical research concluded that it was uni-dimensional, raised important questions about moral disengagement's dimensionality. Was it

most meaningful as a multi-dimensional construct or as a uni-dimensional one that disregarded the theoretical multi-dimensionality he envisaged for it?

When researchers undertook to acknowledge and respect moral disengagement's multi-dimensional theoretical conceptualisation, they were confronted with further uncertainty about the best way to operationalise the construct. One approach they tended to use was to construe it as a multi-factorial construct consisting of either eight (Caprara et al., 2009; Moore et al., 2012) or four factors (Caprara et al., 2009) depending on which of Bandura's (1986) conceptualisations they were testing. The portrayal of moral disengagement as a multi-factorial construct was consistently not supported as an optimal format in the empirical research. The findings of this study were consistent with those of previous researchers who did not find full support for moral disengagement as a four-factor construct. When researchers were confronted with this result, they generally tended to default to testing their findings in relation to the uni-dimensional conceptualisation of moral disengagement that Bandura et al. (1996a; 2001b) found support for in their empirical research. In some cases (Caprara et al., 2009; Moore et al., 2012; Hymel et al., 2005) researchers reported support for this uni-dimensional conceptualisation of moral disengagement which failed to acknowledge its theoretical multi-dimensional character (because all the moral disengagement items were specified to load onto a single moral disengagement factor in the models that were tested). However, this study did not find support for this uni-dimensional conceptualisation of moral disengagement. In other words, the uni-dimensional conceptualisation of moral disengagement which did not acknowledge its multi-faceted theoretical character did not fit the data in this study. This finding was unexpected because when the multi-factorial conceptualisation was not viable in previous empirical studies, the uni-dimensional interpretation generally was (Caprara et al., 2009; Moore et al., 2012). When the multi-factorial treatment of moral disengagement did not yield meaningful results, the author tested the uni-dimensional conceptualisation for which Bandura et al. (1996a; 2001b) and other researchers (Caprara et al., 2009; Moore et al., 2012; Hymel et al., 2005) found support only to find that it too did not yield meaningful results in this study.

Moral disengagement did not seem to be meaningful as a multi-factorial construct or as a uni-dimensional construct that did not acknowledge its theoretical multi-factorial nature. The author, therefore, proceeded to look for a way to operationalise moral disengagement as a uni-dimensional construct in a manner that acknowledged and respected its multi-faceted theoretical character as proposed by Bandura (1986). Previous research by Boardley and Kavussanu (2008),

Jackson and Sparr (2005) and Moore et al. (2012) provided a useful approach for operationalising moral disengagement as a uni-dimensional construct consisting of multiple facets based on its eight-dimensional conceptualisation in social cognitive theory (Bandura, 1986). These authors devised moral disengagement scales consisting of eight items in which each item represented one of Bandura's (1986) eight moral disengagement mechanisms. In this way, they achieved a uni-dimensional conceptualisation of the moral disengagement construct which respected its eight-faceted theoretical character as envisaged by Bandura (1986). However, there was no evidence that previous research had attempted to test a uni-dimensional conceptualisation of moral disengagement that respected its four-faceted character. This study filled this gap by testing moral disengagement as a unitary construct comprised of four facets that represented each of the points in the self-regulation process at which the eight moral disengagement mechanisms were likely to be activated. The findings of this study together with the results of the studies by Jackson and Sparr (2005), Boardley and Kavussanu (2008), and Moore et al. (2012) revealed support for the meaningful depiction of moral disengagement as a uni-dimensional construct defined and operationalised in accordance with either one of Bandura's (1986) theoretical portrayals of it as an eight or four-faceted variable. This constituted the second approach to operationalising the moral disengagement construct in a way that respected its multi-dimensional nature in the context of a single-factor construct.

To summarise, this study found that moral disengagement was not supported as a multi-factorial (four-factor) construct or as a uni-dimensional construct that did not acknowledge its multi-faceted (specifically, its four-faceted) theoretical character. It did, however, find support for moral disengagement operationalised as a uni-dimensional construct based on Bandura's (1986) theoretical conceptualisation of it as a four-faceted variable. An implication of this finding was that Bandura's (1986) theoretical conceptualisation of moral disengagement was, perhaps, best and most meaningfully operationalised as a single-factor construct that acknowledged and retained the eight or four-factor nature of the construct in the individual scale items (typically, when the eight-dimensional nature of moral disengagement was represented) or in the clusters or aggregations of scale items (typically, when the four-dimensional nature of moral disengagement was represented) when it was used in empirical research. Thus, Moore et al.'s (2012) conclusion that moral disengagement was not multi-factorial but rather uni-dimensional and multi-faceted seemed to be supported in this study. This implied that the eight mechanisms of moral disengagement and the four points in the self-regulation process at which these mechanisms were

likely to be activated (Bandura, 1986) appeared to be meaningful for defining and operationalising moral disengagement as a unitary construct in the empirical research.

In the theoretical presentation of moral disengagement in social cognitive theory, it was not clear if Bandura (1986) intended for it to be interpreted as a multi-factorial construct consisting of either eight or four factors or if he intended for it to be interpreted as a unitary construct comprised of multiple facets; either eight, as suggested by Moore et al. (2012) or four, as suggested by the findings in the present study. Interestingly, both these interpretations seemed to be theoretically viable in the context of social cognitive theory. However, when these competing theoretically viable interpretations were subjected to statistical analyses in this study, one conceptualisation emerged as seemingly more meaningful than the other. The conceptualisation of moral disengagement as a uni-dimensional construct consisting of four facets seemed to receive stronger statistical support than the four-factor conceptualisation of moral disengagement. A possible practical interpretation of this finding was that when individuals answered the questions pertaining to moral disengagement, they tended to interpret it as one phenomenon comprised of four highly inter-related sub-components which were leveraged jointly either at a single point or at multiple points in time to rationalise software piracy behaviour. Due to the lack of sufficient statistical support for the four-factor conceptualisation of moral disengagement, it is possible that this practically meant that individuals who participated in this study may not have conceptually separated moral disengagement out into four distinct sub-components that were leveraged as conceptually discrete sub-processes to ultimately achieve moral disengagement.

It was noted earlier that Bandura's (1986) original theoretical presentation of the four points in the self-regulation process at which the eight mechanisms of moral disengagement were likely to be activated could have been misleading. Based on this presentation it would not have been far-fetched if moral disengagement was interpreted as a sequential process consisting of four distinct stages that were activated at different points during the self-regulation process. Two decades later, a brief comment by McAlister et al. (2006) clarified that the four points in the self-regulation process at which the eight mechanisms of moral disengagement were likely to operate (depicted graphically in Figure 2.2 in Chapter 2) were merely a schematic representation of the loci and did not represent a sequential process through which moral disengagement was ultimately achieved. Thus, it seemed that, theoretically, moral disengagement was never meant to be understood as a sequential process that unfolded over time.

The findings that emerged from this study appeared to align with this intended theoretical interpretation (i.e. that moral disengagement was not a sequential process). Each time moral disengagement was measured, support was found for a uni-dimensional conceptualisation that respected the four points in the self-regulation process proposed by Bandura (1986). This suggested that instead of consisting of four distinct stages that unfolded sequentially over time, moral disengagement appeared to be an end-to-end process in which individuals tended to draw on mechanisms from all four points in the self-regulation process in the context of each single activation to justify their antisocial behaviour. The participants in this study perceived the mechanisms activated at each of the four points in the self-regulation process as highly inter-related and, consequently, conceptually indistinct. Interestingly, if they had perceived the four sets of moral disengagement mechanisms as conceptually separable (i.e. if their responses to the moral disengagement questions did not result in high inter-correlations between the four factors in the multi-factorial solution), then it may have been possible to interpret moral disengagement as an end-to-end process in which individuals drew on mechanisms from all four points in the self-regulation process (which they appeared to perceive as unrelated and conceptually distinct) in the context of each single activation to justify their antisocial behaviour.

This study found that the activation of moral disengagement was not once-off, however. It appeared to be activated both before individuals formed the intention to engage in antisocial behaviour and before they enacted antisocial behaviour at a future point in time, as well as after antisocial behaviour had been enacted in the past. This suggested that moral disengagement was likely to be activated at multiple points over time but that at each activation, it seemed to take the same form of a single, end-to-end process in which individuals tended to draw on the mechanisms from all four points in the self-regulation process to justify their antisocial behaviour. Thus, this study did not support moral disengagement as a sequential process in which different mechanisms were activated at different points in time before individuals could completely morally disengage from their antisocial behaviour. Instead, this study found support for moral disengagement as an event that individuals undertook to execute, in its entirety, before they could form intentions to engage in antisocial behaviour and to enact antisocial behaviour at some point in the future, and after they had engaged in antisocial behaviour at some point in the past but before they formed new intentions or engaged in the same behaviour at a future point in time. This suggested that even though individuals may have already morally disengaged in relation to a specific behaviour, it was likely that they would morally disengage again in relation to the same behaviour either to justify the behaviour they had already enacted or to justify a future intention and/or the

engagement of the same antisocial behaviour again at a future point in time. Therefore, while it was not likely to be a sequential process that consisted of multiple activations of different components of moral disengagement before individuals could completely morally disengage from their antisocial behaviour, moral disengagement was likely to be activated at multiple points in order to justify the same genre of behaviour. But each time it was activated, it was likely to be an end-to-end event in which individuals disengaged from their antisocial behaviour and its detrimental consequences. This study highlighted that even if individuals have already morally disengaged at some point in the past, when they are confronted with the option to engage in the same behaviour in the future, they are likely to morally disengage again, and that the form their moral disengagement was likely to take was the same as the form it assumed the first time round.

Bandura (1986) did not offer clarity about how the constructs he envisaged in social cognitive theory operated together in an integrated, predictable manner to explain human behaviour. The second theoretical gap this study aimed to fill was to understand how a subset of social cognitive constructs, specifically moral disengagement, proficiency-based self-efficacy, intention and behaviour, interacted temporally with each other in an attempt to begin to piece together the likely temporal sequences between the constituent components. There were two realities that prevented a comprehensive treatment of this question. First, not all the social cognitive constructs were included in this study. Apart from moral disengagement, the author only included proficiency-based self-efficacy, intention and behaviour so naturally, it was only in relation to these that moral disengagement's temporal sequences were examined. Second, since the author did not undertake to research a full model of social cognitive theory in this study, the temporal sequences between moral disengagement, proficiency-based self-efficacy, intention and behaviour were necessarily only a preliminary indication of how these constructs were likely to interact with each other in the absence of those variables that were omitted (viz. outcome expectations and facilitators and impediments).

Tests of cross-lagged panel models and mediation models revealed that moral disengagement was likely to temporally precede intention and future behaviour. This suggested that before individuals formed intentions to behave antisocially or enacted antisocial behaviour, they were likely to morally disengage from their behaviour and its negative consequences. The findings also showed that moral disengagement appeared to temporally follow past behaviour suggesting either that individuals morally disengaged both before and after a behaviour in order to rationalise it to themselves or that moral disengagement was a pre-requisite for engaging in antisocial behaviour

every time it was considered. In other words, even though individuals had previously morally disengaged from the negative behaviour and its consequences in the past, they were likely to morally disengage again in preparation for enacting either the same or a different antisocial behaviour in the future. Like moral disengagement, proficiency-based self-efficacy appeared to precede future behaviour and to temporally follow past behaviour. However, unlike moral disengagement, proficiency-based self-efficacy did not precede intention but rather seemed to temporally follow it. This implied that moral disengagement was likely to temporally precede proficiency-based self-efficacy based on the results of this study. These findings had important implications which will be discussed next.

Individuals were likely to evaluate their capabilities to engage in antisocial behaviour before undertaking to enact it. Further, it seemed that past behaviour exerted a causal effect on self-efficacy suggesting that individuals were likely to experience an elevated sense of proficiency-based self-efficacy after successfully enacting a behaviour. However, proficiency-based self-efficacy appeared to function as a mediator between intention and future behaviour suggesting that individuals were only likely to consider whether or not they possessed the capability to engage in antisocial behaviour after they formed the intention to perform the behaviour. In addition, it seemed that the formation of the intention did not automatically translate into the enactment of antisocial behaviour. Instead, individuals' levels of proficiency-based self-efficacy seemed to influence the translation of intention to behaviour. The results suggested that if individuals believed they possessed the proficiency to engage in antisocial behaviour then after forming the intention they were likely to proceed to enact the behaviour. However, if individuals did not believe that they possessed the proficiency to engage in antisocial behaviour then they were likely to morally disengage and form the intention to behave antisocially but after considering their proficiency their intention was unlikely to be translated into an enactment of the behaviour.

While moral disengagement did not appear to exert a direct causal influence on proficiency-based self-efficacy in this study, it appeared that the relationship between moral disengagement and self-efficacy was mediated by intention. This suggested that it was only through the intention construct that moral disengagement and self-efficacy appeared to share a meaningful relationship with each other. This meant that in the absence of intention, moral disengagement and self-efficacy were unlikely to be related to each other or to interact with each other (albeit indirectly) at all. Therefore, the formation of intentions to behave antisocially appeared to be a pre-requisite

for the interaction between moral disengagement and self-efficacy. This implied that if individuals morally disengaged and formed the intention to behave antisocially, then moral disengagement was likely to temporally precede proficiency-based self-efficacy and to interact indirectly with it to inform the ultimate enactment of antisocial behaviour.

A central theme in the theoretical critique that was brought against social cognitive theory in this study was its empirical testability. It was argued that social cognitive theory was not formulated as a theoretical framework that could readily be empirically tested. This argument was supported by the lack of a clear and consistent set of building blocks and the lack of clarity about how these constituent components interacted with each other in a predictable pattern as an integrated model of human behaviour. These theory-level criticisms appeared to cascade down to the level of the individual building blocks of social cognitive theory, specifically the moral disengagement construct, which constituted the focal variable of interest in this investigation. Bandura (1986) was not clear about whether moral disengagement was a multi-factorial construct or a uni-dimensional one comprised of multiple facets. Further, there was no clarity about whether it was most meaningful as an eight-factor construct or a single-factor variable with eight facets or as a four-factor construct or a one-factor variable with four facets. To further complicate these points of uncertainty pertaining to moral disengagement's dimensionality, it was not clear whether individuals leveraged mechanisms from all four points in the self-regulation process (at which they were likely to be selectively activated) in order to achieve moral disengagement in all cases and/or contexts. Cumulatively, these points of uncertainty led to challenges with the operationalisation of moral disengagement as a standardised and consistently-defined predictor in empirical tests of social cognitive theory.

If social cognitive theory is interpreted and operationalised differently by every researcher who undertakes to use it because Bandura's (1986) presentation tends to leave so much room for interpretation, then it is likely to be difficult, if not impossible, to establish its utility as a consistent theory of human behaviour and to assess its generalisability to the full spectrum of human behaviour. It seemed that each time moral disengagement was leveraged as a social cognitive predictor in empirical studies, researchers were required to undertake an elaborate analysis of Bandura's (1986) theoretical presentation of the construct and its interactions with other variables in social cognitive theory in order to make sense of how to interpret and operationalise it in real-world applications. The lack of theoretical clarity translated into the operationalisation of moral disengagement in different ways and in inconsistent

conceptualisations about how it interacted with other social cognitive constructs. This detracted from the comparability of the findings derived from empirical tests of moral disengagement which precluded firm, clear and consistent conclusions about its dimensionality and interactions with other social cognitive constructs. This, in turn, detracted from understanding whether or not moral disengagement's dimensionality and interactions were likely to be stable across all contexts and behavioural domains or if they were likely to vary depending on the context in order to predict and explain different kinds of antisocial behaviour. In other words, it was unclear whether the dimensionality and interactions of moral disengagement that were supported in relation to predicting software piracy behaviour in this study would be the same in other studies examining software piracy behaviour or in studies examining other types of antisocial behaviour.

The author believes that in order to assess whether or not the findings that emerged from the present study are generalisable to other instances of software piracy behaviour and to other instances of antisocial behaviour, it is essential to render social cognitive theory into an empirically testable theoretical framework. This would probably require researchers to agree about how to define and operationalise the constituent components of social cognitive theory and how to arrange their interactions in an integrated structural model so that it could be consistently applied in a standardised manner to explain behaviour within and across behavioural domains. While this is not impossible, it would require a co-ordinated effort among like-minded researchers to work from a common and agreed-upon interpretation of Bandura's (1986) social cognitive theory to test its generalisability within and across behavioural domains. It is hoped that in its conceptualisation, design, execution and findings, this study offers the first step in this process.

7.5 Limitations in this study

The author identified the following potential limitations in this study.

7.5.1 Sampling bias due to self-selection

The author invited a large pool of prospective respondents to participate in the pilot study and the main longitudinal study via emails with links to the questionnaires. Every prospective respondent was in complete control over the decision about whether or not to participate in the study. Consequently, it was likely that the samples used to conduct this study were biased due to the

self-selection of respondents. It is possible that only those individuals who felt comfortable reporting on their involvement in the illegal act of pirating software or those who believed that disclosing whether or not they pirated software would not lead to negative consequences were more likely to have participated. This implies that participants' decisions to complete the questionnaires could have been correlated with a set of extraneous traits which could have rendered the samples less representative of the broader population, thereby, potentially limiting the generalisability of this study's findings.

7.5.2 Use of self-report questionnaires for data collection

The self-report questionnaires used to collect data in this study explicitly asked individuals whether or not they had engaged in software piracy in the past and whether or not they intended to pirate software at some point in the future. Due to the sensitivity associated with asking respondents to admit that they had or were planning to engage in an antisocial and illegal behaviour, it is possible that individuals could have under-reported whether they had enacted the behaviour in the past or planned to execute it in the future to protect the image they portrayed to the researcher. In other words, they may have opted to under-report their true behaviour and intentions just so that they could retain the social approval and acceptance of the researcher. Thus, they may have reported that they had or were planning to engage in socially acceptable and appropriate behaviours rather than admitting to having enacted or contemplated enacting an antisocial behaviour in the form of software piracy. To counteract this possible limitation, the author granted all participants complete anonymity. They were not required to provide any identifying information in either the pilot study or the main longitudinal study (in which respondents' completed questionnaires were matched using a special code). In this way, the author attempted to offer respondents a "safe" context in which to honestly complete the questionnaire. This could have gone some way towards minimising this limitation.

Another problem associated with the use of self-report questionnaires was that respondents were responsible for providing input on both the predictor variables (moral disengagement, proficiency-based self-efficacy, intention and past behaviour) and the criterion variable (future behaviour) assessed in this study and, therefore, there was the increased likelihood that they would try to align their responses about the predictor measures with those about the criterion measure in the interests of consistency. Podsakoff, MacKenzie, Lee and Podsakoff (2003) referred to this as the consistency motif. This could potentially result in the creation of

relationships between variables where none would ordinarily exist in real-world situations, thereby producing misleading results or the exaggeration of true relationships between these variables which may otherwise not have been as strong. The author attempted to minimise this source of error by introducing a time-lag of between three and four months in the longitudinal study to separate the assessment of the predictor variables from that of the ultimate criterion variable.

7.5.3 Use of identical questionnaires to execute the longitudinal research design

This study used identical questionnaires to measure the social cognitive constructs in question in the main longitudinal study to comment on the extent to which their measurement was invariant over time and to examine the likely causal sequences between them and their temporal precedence in relation to each other. The author identified two possible problems associated with the use of identical questionnaires at each measurement point. First, due to testing or memory effects, if the time-lag between the two points was not long enough to allow for sufficient memory decomposition, then the chances were high that individuals would remember the answers they provided in the first round and respond in a similar way in the second. Thus, the stability of the measurement of constructs over time and the nature of the relationships between them could have been a function of the respondents remembering how they responded at Time 1 which could have led them to respond in the same way at Time 2, instead of being a true reflection of longitudinal measurement invariance and the actual relationships that would manifest in a real-world situation. Second, the sources of error that affected measurement at Time 1 were likely to be identical to the sources of error that were likely to affect measurement at Time 2 due to the use of identical questionnaires. This suggested that if individuals answered questions in a socially desirable way at Time 1, then they were likely to respond in the same way at Time 2. Therefore, in addition to measuring the constructs of interest at each measurement point, a portion of the error variance in the indicators (items) was likely to be due to extraneous factors that were unrelated to the variance accounted for by the constructs of interest. Since these error variances were likely to be the same due to the use of identical questionnaires, the author ensured that the indicator-specific error terms were correlated in the tests of longitudinal measurement invariance to cater for the method effects that were likely to result from the repeated administration of the same measure in the longitudinal study.

7.5.4 Unknown impact of the three to four month time-lag

Software piracy is not a developmentally-driven process and it is not a predictable one either, suggesting that individuals are likely to follow a myriad routes to arrive at the final behaviour of pirating software. Therefore, the author had to decide on what would constitute a meaningful time-lapse for conducting longitudinal research in a manner that allowed the causal effects that were of interest to unfold so that they could be examined in this study. Limayem et al. (2004) previously catered for a three month time-lag in the context of researching software piracy longitudinally. Their findings suggested that the structural model proposed to explain software piracy behaviour was viable which implied that the three month time-lag (Limayem et al., 2004) could have allowed the causal sequences that typically unfold over time to unravel and exert their influence. A three-month time-lag also offered many practical benefits. The author believed that it would yield a higher response rate than if the study was designed around a twelve month time-lag, as was the case with Compeau et al. (1999). It was more likely that respondents would be contactable three months later and, as more time passed, the chances of contacting them to participate in the second wave of assessment would be dramatically reduced. It was also more likely that, after giving their commitment to participate in a longitudinal study, respondents would still be motivated to honour it three months later, whereas this commitment could dwindle significantly, resulting in respondents losing motivation to complete the second questionnaire twelve months later. The three month time-lag sometimes became a four month time-lag in this study because, despite reminders, some respondents completed their second questionnaire four months instead of three months after the first one. Thus, a three month (instead of a twelve month) time-lag was selected because it had been successfully employed in the software piracy context before and because it offered practical benefits. However, there is no certainty that a three to four month time-lapse was sufficient to allow the causal sequences between moral disengagement and the other social cognitive constructs, used to explain software piracy in this study, to unfold, and whether it was sufficient to allow the nature of moral disengagement to evolve (if any evolution was, indeed, required). Therefore, the finding that moral disengagement appeared to be measured stably over time could have been a function of the nature of moral disengagement remaining steadfast and resolute over time in the context of explaining software piracy behaviour or it could have been a function of three to four months not being sufficient for capturing the changes in the moral disengagement construct in relation to software piracy behaviour. The lack of clarity about whether or not the three to four month time-lag was sufficient and meaningful in this study meant that the conclusions that emerged from the findings

had to be disclaimed by the possibility that this time-lag may not have been the most optimal and meaningful one.

7.5.5 Use of structural equation modelling as the data analysis technique

The use of structural equation modelling, specifically confirmatory factor analysis, to examine the dimensionality of the moral disengagement construct rendered it difficult to examine the nuances between the multiple factors that were specified to represent it. In the multi-factorial solutions (starting with the tried-and-tested four-factor solution, then moving on to the novel conceptualisations of moral disengagement as two and three-factor solutions, based on the locus of responsibility or the object of dissociation interpretations or a combination of the two), the confirmatory factor analysis results revealed high intercorrelations between the factors. This suggested that each of the multiple factors were likely to be so similar to each other that they were difficult to differentiate using this technique. This statistical reality led to specification and measurement problems when the high intercorrelations contributed to solutions involving multi-factorial representations of moral disengagement that were non-positive definite and, consequently, uninterpretable. Therefore, these findings necessarily nudged the author to consider the possibility that moral disengagement was a single process in which mechanisms from all four points in the self-regulation process were drawn on to justify a behaviour. Further, it was likely that the activation of moral disengagement was likely to be an event that took place from start to finish and that when individuals felt the need to activate the moral disengagement process again at some point in the future then it was likely that once again moral disengagement would take place as an event from start to finish in the subsequent activation. It was possible that the technique of structural equation modelling was simply not sensitive enough to support the examination of the intricate nuances and points of difference between the multiple factors that moral disengagement was conceptualised to consist of. Therefore, it tended to simply cluster these similar (but not identical) factors together to support a uni-dimensional moral disengagement construct. The conclusion that moral disengagement could be a uni-dimensional construct, which emerged from this study and from many empirical studies before this one, could have been a function of the data analysis technique rather than a true reflection of the nature of the construct. However, the author believes that the benefits the use of structural equation modelling offered far outweighed this possible limitation so, in the absence of a more suitable data analysis technique, these findings were accepted with the understanding that the conclusions drawn from them could have been introduced by problems with the technique rather than reflect

the true nature of the construct. That said, however, the author believes that all data analysis techniques would probably suffer from a similar criticism so all findings would technically have to be interpreted and viewed in this way (i.e. with the acknowledgement that the data analysis technique could have contributed to possible conclusions that may not reflect the true nature of the constructs under investigation).

7.6 Directions for future research

The following emerged as areas for future research.

7.6.1 The utility of eight-faceted versus four-faceted uni-dimensional interpretations of moral disengagement

Although Bandura (1986) theorised that moral disengagement was likely to be a multi-dimensional construct consisting of either eight or four dimensions, this study did not find empirical support for it as a multi-factorial construct. Instead, support was found for a uni-dimensional conceptualisation of moral disengagement. Specifically, the unitary construal in which all the scale items were indiscriminately specified to load onto a single moral disengagement factor was not supported. But the uni-dimensional conceptualisation represented by a scale consisting of four aggregated items representing the clusters of mechanisms that were likely to be activated at the four points in the self-regulation process Bandura (1986) envisioned, did receive support in this study. The items representing moral justification, euphemistic labelling and advantageous comparison were parcelled to form the first item depicting moral disengagement at the point of the behaviour or moral disengagement at the behaviour locus. The items representing displacement of responsibility and diffusion of responsibility were aggregated to constitute the item representing moral disengagement that occurred at the point between behaviour and its consequences or moral disengagement at the agency locus. The items loading onto the distortion of consequences mechanism were aggregated to form the third composite item representing moral disengagement at the point of the consequences of behaviour or moral disengagement at the outcome locus. Finally, items representing the attribution of blame and dehumanisation mechanisms were aggregated to represent the fourth item which depicted moral disengagement at the point of the victim or moral disengagement at the recipient locus (Bandura, 1986; McAlister et al., 2006).

While this study found support for this conceptualisation of moral disengagement as a uni-dimensional scale based on the four facets of moral disengagement Bandura (1986) proposed, other research by Jackson and Sparr (2005) and by Moore et al. (2012) suggested that an alternative uni-dimensional scale representing the eight discrete moral disengagement mechanisms Bandura (1986) identified in social cognitive theory was also likely to be viable. The author recommends that future research examine both these uni-dimensional conceptualisations of moral disengagement based on Bandura's (1986) theoretical eight and four-faceted interpretations to assess which one is likely to more optimally depict the moral disengagement construct in empirical research. The results of a such a study would also help to understand which of Bandura's (1986) theoretical conceptualisations is likely to be more useful for understanding moral disengagement as a uni-dimensional construct in empirical research, especially since the utility of these theoretical conceptualisations is unlikely to be productively estimated in the context of researching moral disengagement as a multi-factorial construct.

7.6.2 Is moral disengagement leveraged to justify past behaviour and/or future behaviour?

The findings of this study suggested that moral disengagement temporally preceded future behaviour and temporally followed past behaviour. This suggested that it was unlikely to be a once-off event but was likely to be activated at multiple points either to justify the same instance of behaviour both before and after it had been enacted or to justify separate instances of behaviour in the same behavioural genre or domain at separate points in time before individuals undertook to engage in the behaviour in question. The author noted earlier that this study was not designed to distinguish between whether the activation of moral disengagement was geared towards reaffirming the reasons for why past software piracy behaviour was still justifiable or whether it was oriented towards justifying engaging in software piracy in the future each time individuals intended to enact the behaviour. Perhaps, future research could probe more deeply into the reasons why individuals opted to activate moral disengagement to more clearly understand their motivation for morally disengaging. In this way, researchers would have a clearer understanding about the nature of the moral disengagement they were actually studying.

7.6.3 Is moral disengagement always the same or does it change over time?

The fact that moral disengagement did not appear to change in form across the two measurement points separated by a three to four month time-lag in this study, did not imply that the nature of

moral disengagement was necessarily exactly the same each time it was activated in the context of software piracy behaviour. The findings of this study suggested that, certainly in terms of dimensionality, it seemed to be the same. However, the time it took for individuals to work through the moral disengagement process at different points in time in the context of software piracy could have differed. In addition, the intensity of the cognitive processing resources required to morally disengage to justify software piracy behaviour at different points in time could also have varied. It would be interesting to understand if moral disengagement differed on the basis of these criteria in the behavioural domain of software piracy in future research.

Chiou, Wan and Wan (2012) proposed that software piracy (in the form of softlifting) could prime an inauthentic sense of self which, in turn, could facilitate and promote the enactment of other types of unethical behaviour. Their findings suggested that if individuals had engaged in software piracy (specifically softlifting) previously, then the chances that they would engage in other types of antisocial behaviour in the future were increased due to the inauthentic sense of self that their enactment of the initial software piracy behaviour would have primed. In situations where this is true, the author believes that there could be implications for moral disengagement. It is possible that the form moral disengagement takes when leveraged to justify software piracy behaviour will be the same as the form that it takes when leveraged to rationalise other types of antisocial behaviour. However, the opposite could also be true. It is the task of future researchers to examine this issue. If the format of moral disengagement remains stable then researchers could comment on its generalisability across behavioural domains. As discussed earlier in relation to the findings of the present study, even if the form of moral disengagement remained stable across behavioural domains, it was still possible that it could differ on other counts such as the time taken to morally disengage and the intensity of the cognitive processing resources used to achieve moral disengagement. By virtue of having leveraged moral disengagement before (either to rationalise the same behaviour within the same behavioural domain or different behaviours across behavioural domains), it could take individuals less time and require the use of less intense cognitive processing resources to achieve subsequent moral disengagement. Thus, even though it may not differ in form, it could differ on these other counts which are worthy of empirical investigation.

7.6.4 Self-efficacy as a possible mediator or moderator of the interaction between intention and future behaviour

This study was unable to empirically research the interaction between intention at Time 1, self-efficacy at Time 2 and future behaviour (which would only have been possible if this was measured at Time 3 in the context of a third assessment wave). The author recommends that future research build in a third assessment wave into the research design to empirically test this interaction in order to comment on whether proficiency-based self-efficacy acts as a mediator between intention and future behaviour. It would also be interesting to research the possible moderating effect of proficiency-based self-efficacy on the interaction between intention and future behaviour to understand the role that this construct was likely to play in the translation of intention into actual behaviour in antisocial contexts.

7.6.5 Test a comprehensive social cognitive model of human behaviour which includes all the building blocks

A final recommendation for future research would be to conduct a longitudinal study (with an appropriate number of assessment waves to enable the examination of all the interactions of interest) which includes all the social cognitive building blocks identified in this study (viz. moral disengagement, self-efficacy, outcome expectations, facilitators and impediments, intention and behaviour). This comprehensive social cognitive model should be designed to examine the likely temporal sequences between the full complement of building blocks and to understand how they all cohere and function in an integrated fashion to predict antisocial behaviour. Specifically, it would be important to establish whether or not the comprehensive model is generalisable to other instances of software piracy behaviour, in particular, and to other types of antisocial behaviour, in general, by testing it in a consistent manner in order to predict a range of transgressive behaviours. This would require the use of identical building blocks, defined and operationalised in exactly the same way, which are combined using a standardised and predictable set of interactions to constitute an integrated model of human behaviour.

It is possible that software piracy behaviour (which was the specific instance of antisocial behaviour examined in this study) could differ intrinsically from other types of transgressive behaviours which result in grievous harm to those against whom it is directed. Therefore, it may not be possible to consistently apply social cognitive theory to the prediction of software piracy

and other types of transgressive behaviour. This may be due to specific contextual factors in the software piracy behavioural domain that could warrant a differential operationalisation of the theory (in terms of the definition of individual constructs and in terms of the manner in which these constructs interact with each other) in order to achieve a meaningful prediction of this specific type of antisocial behaviour. It is also possible that the application of a comprehensive model of social cognitive theory to predict software piracy behaviour, as it was conceptualised in this study, would only be meaningful to this specific instance of software piracy behaviour and would not be generalisable to explaining other instances of this behaviour. Only future research can shed light on these issues of generalisabilty.

The author believes that a similar exercise would also prove useful in the prosocial arena (within and across prosocial behavioural domains). This would enable a comparison between the interactions, temporal sequences and overall model coherence between the prosocial constructs used to explain instances of prosocial behaviour and the interactions and model characteristics relevant for explaining antisocial behaviour.

7.7 Strengths of this study

The sample of respondents in this study was comprised of a range of individuals with varying levels of education, skills and fields of expertise from a diverse range of industry sectors. Thus, this study did not suffer from the same shortcomings as those that relied on student samples to understand software piracy. The author was confident, therefore, that the findings from this study were likely to be generalisable to a wider population. This was one of this study's strengths. Another strength was the use of a longitudinal research design to answer the research questions. This offered several advantages. First, it allowed for the structural properties of social cognitive theory, in the form of reciprocality and temporality, to be accommodated in the models that were tested. Second, it allowed tentative comments about causal sequences and temporal precedence to be made by empirically examining whether specific constructs preceded others. Third, it allowed for all the constructs to be measured at two different points in time. It was this that enabled the examination of bi-directional relationships between constructs. While it is instructive to know that the interactions between variables takes place in both directions, it is also vital to understand which leg of the bi-directional interaction is likely to produce the first causal impact. The longitudinal research design allowed for the examination of cross-lagged path models and mediation models to explore the interactions that were likely to have produced the first impact in

the context of social cognitive theory. These insights were vital for beginning to piece together an idea about how a structural model was likely to fit together. The findings of this longitudinal study were, therefore, more instructive than those that emerged from cross-sectional studies because it enabled firmer comments to be made about causal sequences and temporal precedence. They were also more useful than findings that emerged from longitudinal studies that measured one set of variables at Time 1 and a different set of variables at Time 2 (Bandura et al., 2001b) because these studies were unable to test bi-directional influences. Thus, they were not able to comment on which leg of a bi-directional interaction was likely to have exerted the first causal impact and was, consequently, most meaningful for understanding the relationship in question.

The exploratory, quasi-experimental nature of this study allowed for a significant degree of flexibility to explore the primary theoretical points of interest (viz. the dimensionality of moral disengagement and moral disengagement's interactions with other social cognitive variables). The author was not constrained by rigid experimental conditions and considerations and had the discretion to take an "organic" approach to answering the research questions based on the findings that emerged along the way. For example, when the findings revealed that moral disengagement was not empirically supported as a multi-factorial variable based on the theoretical eight and four-dimensional conceptualisations Bandura (1986) proposed, the author undertook to explore alternative multi-factorial conceptualisations (two and three-factor solutions) based on the locus of responsibility and object of dissociation interpretations, which did not have a theoretical basis in social cognitive theory, but which appeared to be supported by the empirical evidence. This was not the original intention but the exploratory nature of the research allowed the author to walk down this path even though it was not earmarked as a path that would even be considered right at the outset (i.e. it was not a priori; a pre-condition in pure experimental research). This exploratory approach allowed for the 'organic' exploration of the research questions pertaining to moral disengagement's dimensionality and its interactions with other social cognitive variables in a way that contributed rich and meaningful insights; insights which may not have been possible in the context of a pure experimental design. Thus, the author believes that the findings that emerged from this study were meaningful and offered a useful starting point from which future researchers could build.

CHAPTER 8: CONCLUSION

This thesis set out to answer two main research questions. First, what is the most meaningful factor structure for moral disengagement as a predictor of antisocial behaviour? Second, what is the likely temporal position of moral disengagement in relation to proficiency-based self-efficacy, intention and behaviour (past and future) in the context of a structural model of social cognitive theory aimed at predicting antisocial behaviour? In addition, the author examined the likely temporal positions of self-efficacy, intention and behaviour relative to each other in order to predict antisocial behaviour. This was done with the understanding that the social cognitive constructs included in this study constituted an incomplete set of building blocks.

This study did not find sufficient support for moral disengagement as a multi-factorial construct suggesting that Bandura's (1986) theoretical conceptualisation of moral disengagement as being multi-dimensional (represented by either eight or four dimensions) could have been somewhat misleading. However, unlike previous empirical research (Bandura et al., 1996a, 2001b) which found support for moral disengagement as a unitary construct operationalised as a single moral disengagement factor with all the items in the scale loading onto it, this study did not find support for a uni-dimensional interpretation that matched this factor structure. Instead, the uni-dimensional format of moral disengagement for which support was found, consisted of four aggregated or parcelled sets of items representing the clusters of moral disengagement mechanisms activated at the four points in the self-regulation process Bandura (1986) envisaged in his theoretical conceptualisation (viz. at the point of the behaviour, at the point between behaviour and its consequences, at the point of the consequences of behaviour and at the point of the victim). This finding was important because it highlighted that although moral disengagement was likely to work best and be most optimal as a uni-dimensional construct, the manner in which it was defined and operationalised as a unitary variable, in terms of the four points in the self-regulation process at which the mechanisms were likely to be activated, offered a meaningful contribution to making empirical sense of moral disengagement's dimensionality in this study. Although it did not happen in the way that the author expected, this study found support for moral disengagement as a uni-dimensional construct consisting of four facets corresponding to the clusters of moral disengagement mechanisms that are likely to be activated at the four points in the self-regulation process Bandura (1986) envisaged. It is also likely, based on previous empirical research (Jackson & Sparr, 2005; Moore et al., 2012), that empirical support may be

found for moral disengagement as uni-dimensional construct defined in terms of the eight discrete mechanisms Bandura (1986) proposed as cognitive strategies individuals could use to rationalise their antisocial behaviour in order to render it more palatable to themselves. While this study did not test this alternative uni-dimensional conceptualisation of moral disengagement, it would certainly be interesting to compare it with the one for which support was found in this study in future research to understand which of them is likely to offer a more meaningful interpretation of moral disengagement as a predictor of antisocial behaviour.

This study also found support for the longitudinal measurement invariance of the moral disengagement construct when it was measured over time. This suggested that when it was activated at Time 1, moral disengagement assumed the format of a uni-dimensional construct which was represented by four parcelled items capturing the groups of mechanisms that were likely to be activated at each of the four points in the self-regulation process that Bandura (1986) identified. Then, when moral disengagement was measured again at Time 2, it took on the same structural form. This suggested that moral disengagement was likely to be just one process that individuals either engaged in from end-to-end or did not undertake at all. When it was activated, individuals were likely to draw on mechanisms from all four points in the self-regulation process to justify their antisocial behaviour. Cumulatively, these justifications constituted the singular cognitive act of morally disengaging, which suggested that moral disengagement was unlikely to be a sequential process activated at four separate points in the self-regulation process which ultimately culminated in individuals' distancing themselves from their antisocial conduct and its harmful consequences as suggested in Bandura's (1986) theoretical portrayal of it as a four-dimensional construct in social cognitive theory. Instead, all the facets of moral disengagement appeared to be activated at a single point in time and were invoked collectively by the actor in the quest to justify a specific antisocial behaviour.

This study aimed to understand moral disengagement's interactions with proficiency-based self-efficacy, intention and behaviour to comment on whether it temporally preceded or followed these variables in the predictive equation for explaining antisocial behaviour. This study found that moral disengagement was likely to precede future behaviour and to follow past behaviour. Thus, it answered an important question about whether moral disengagement came before or after behaviour (Sykes & Matza, 1957) by offering evidence that it appeared to be activated at both points (i.e. both before and after an antisocial behaviour was engaged in). There were several possibilities about what this could have meant. It could have meant that moral disengagement was

activated before a behaviour was enacted and that each subsequent time before a similar behaviour was engaged in, moral disengagement was activated again before that behaviour was performed so that individuals could distance themselves from their detrimental behaviour and its consequences. Another possibility was that moral disengagement was activated before a behaviour had been engaged in at Time 1 and then again after the behaviour was enacted at Time 2 in order to justify exactly the same instance of behaviour both before and after it had been enacted. Whether it was to rationalise a behaviour both before and after it had been enacted, or whether moral disengagement was activated prior to engaging in antisocial conduct each time individuals made the choice to engage in detrimental behaviour, this study found that moral disengagement was likely to be activated at multiple points and, consequently, it was unlikely to be a once-off event. Instead, it seemed that moral disengagement was activated either before or both before and after antisocial behaviour was conducted so that individuals could justify said behaviour to themselves and in so doing give themselves the licence to continue to engage in it despite its detrimental nature and dire consequences.

Intention's tightly interwoven theoretical relationship with behaviour in which intention was temporally precedent to behaviour suggested that if moral disengagement preceded behaviour then it was also likely to precede intention. This study found empirical evidence which suggested that in the interaction between moral disengagement and intention, moral disengagement appeared to exert the first causal influence on the intention construct implying that moral disengagement was likely to be temporally precedent to intention. In the light of intention's close theoretical relationship with behaviour in which intention was conceptualised as preceding future behaviour, this study conceptualised moral disengagement as temporally preceding both intention and future behaviour with intention being temporally precedent to future behaviour. This study found support for the moral disengagement, intention and future behaviour sequence which suggested that moral disengagement temporally preceded intention, that intention temporally preceded behaviour, that moral disengagement temporally preceded behaviour and that intention acted as a partial mediator of the influence of moral disengagement on future behaviour.

Interestingly, although moral disengagement seemed to precede intention in this study, there was no evidence that self-efficacy interacted with intention in the same way. In fact, all the tests demonstrated that self-efficacy seemed to follow intention and to precede future behaviour. Therefore, this study alluded to the temporal sequence of intention, self-efficacy and future behaviour which suggested that self-efficacy was likely to either mediate or possibly even

moderate the relationship between intention and behaviour. This finding suggested that individuals' perceptions of their efficacy to engage in antisocial behaviour could have been instrumental in determining whether or not their intention to engage in the behaviour was translated into actual behaviour. Unfortunately, it was not possible to empirically test the interactions between intention, self-efficacy and future behaviour in this study because it would have necessitated a third assessment wave which this longitudinal design did not cater for (it only accommodated two assessment waves). The piecing together of interactions between self-efficacy at Time 1 and Time 2 (which revealed that self-efficacy did not temporally precede intention), intention at Time 1 and self-efficacy at Time 2 (which suggested that self-efficacy seemed to temporally follow intention), and self-efficacy at Time 1 and future behaviour at Time 2 (which suggested that self-efficacy preceded future behaviour) led the author to conclude that the temporal sequence of self-efficacy temporally following intention but preceding future behaviour (although not explicitly tested) was derived and inferred from the findings of this study. Further, the test in which moral disengagement preceded intention which, in turn, preceded self-efficacy yielded empirical support for the notion that moral disengagement appeared to temporally precede proficiency-based self-efficacy.

Thus, individuals appeared to morally disengage first before forming intentions to engage in antisocial behaviour. Then, only after having formed the intention, were they likely to consider whether or not they perceived they were capable to enact the behaviour in question. Thereafter, if they envisaged high levels of proficiency-based self-efficacy, they were likely to enact the behaviour and translate their intention into action but if they did not perceive high levels of proficiency-based self-efficacy, then their intentions were likely to be significantly reduced and the possibility of translating them into behaviour was likely to have been abandoned. In the context of these interactions, it seemed that past behaviour preceded moral disengagement, proficiency-based self-efficacy, intention and future behaviour. This suggested that if individuals had enacted antisocial behaviour in the past, they were likely to morally disengage again at a future time either in relation to the same instance of antisocial behaviour or in relation to a separate instance of antisocial behaviour in the same behavioural domain as the antisocial behaviour that they had morally disengaged from previously. It also suggested that if individuals had enacted antisocial behaviour in the past, they were likely to experience elevated levels of proficiency-based self-efficacy at a future point based on their successful execution of similar behaviour. Finally, the results suggested that if individuals had engaged in antisocial behaviour in

the past, then the chances of them forming intentions to enact similar behaviours in the future and the chances of them actually executing such behaviours again were greater.

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APPENDIX 1: LETTER REQUESTING PERMISSION FROM RESEARCH SITE

School of Human & Community Development

University of the Witwatersrand
Private Bag 3, WITS, 2050
Tel: (011) 717 4500 Fax: (011) 717 4559

Dear Sir/Madam,

My name is Ameetha Garbharran, and I am conducting research for the purpose of obtaining a PhD in Psychology at the University of the Witwatersrand. This study will be conducted in the context of the unauthorised copying of software, which is a multi-billion dollar global industry. The focus of this study is on perceptions and attitudes towards copyright infringement. It aims to understand the psychological mechanisms used to justify and rationalise the unauthorised copying of software. This research will be conducted in three parts. The first will consist of a pilot study in which the robustness of the questionnaire, envisaged for use in the main study, will be evaluated. The second and third parts of this investigation constitute the main study. The main investigation is longitudinal and will require participants to complete the same questionnaire at two points in time separated by a three month time lag.

Participation in the pilot investigation will entail the once-off completion of the attached questionnaire or one very similar to it. Participation in the main study will entail completing a validated revision of the attached questionnaire and one identical to it in three months time. If participants are unable or unwilling to complete both questionnaires in the main investigation, they will kindly be requested not to proceed. Each questionnaire should take approximately 30 minutes to complete. Participation is voluntary, and no employee will be advantaged or disadvantaged for choosing to partake in or to abstain from completing the questionnaires. There are no direct benefits anticipated from participation in this study. The ethical and legal sensitivity of collecting information about the unauthorised copying of software could pose a threat to participants in this study and to alleviate this risk they will be strongly advised not to furnish any unnecessary identifying information to ensure they protect their identities and free me from the ethical and legal obligations to which I will be bound if such identifying information had to come to light. While questions are asked about their personal circumstances, no identifying information, such as names or I.D. numbers, is asked for, and as such participants will remain anonymous. To match responses with those provided three months later, participants will be asked to enter a unique code consisting of their mother's maiden name and the last four digits of their mobile telephone number. Responses will be saved in a neutral and secure database which is password protected and no one other than me and my supervisor will have access to them. Completed questionnaires will not be seen by any other person in this organisation. Participants' confidentiality is therefore guaranteed. Participants will be informed that if they complete and submit the questionnaires, this will be taken as their consent to participate in the study. Participants' responses will only be looked at in relation to all other responses which means that feedback given to the organisation will be in the form of aggregated responses and not individual perceptions. An executive summary of the results of this study will be made available to you via e-mail and to all participants in this study via your organisation's electronic bulletin board.

If you agree to grant me permission to conduct my research in your organisation, I would appreciate it if you communicated this to me in writing on a formal company letterhead or official email. Your participation in this study would be greatly appreciated. This research will contribute to a larger body of psychological theory for explaining and predicting human behaviour.

Best regards,
Ameetha Garbharran (ameethag@gmail.com)

APPENDIX 2A: PARTICIPANT INFORMATION SHEET FOR PILOT STUDY

School of Human & Community Development

University of the Witwatersrand
Private Bag 3, WITS, 2050
Tel: (011) 717 4500 Fax: (011) 717 4559

Hello,

My name is Ameetha Garbharran, and I am conducting research for the purpose of obtaining a PhD in Psychology at the University of the Witwatersrand. This study will be conducted in the context of the unauthorised copying of software, which is a multi-billion dollar global industry. The focus of this study is on perceptions and attitudes towards copyright infringement. It aims to understand the psychological mechanisms used to justify and rationalise the unauthorised copying of software. You are invited to participate in a pilot study which forms part of a bigger research project. The aim of the pilot study is to ensure the robustness of the questionnaire that will be used in the main investigation.

Participation in this research will entail completing the attached questionnaire which should take approximately 30 minutes. Participation is voluntary, and no one will be advantaged or disadvantaged for choosing to partake in or to abstain from completing the questionnaire. There are no direct benefits anticipated from participation in this study. The ethical and legal sensitivity of collecting information about the unauthorised copying of software could pose a threat to you in this study and to alleviate this risk you are strongly advised not to furnish any unnecessary identifying information to ensure you protect your identity and free me from the ethical and legal obligations to which I will be bound if such identifying information had to come to light. While questions are asked about your personal circumstances, no identifying information, such as your name or I.D. number, is asked for, and as such you will remain anonymous. Your completed questionnaire will not be seen by anyone other than me and my supervisor and your responses will be saved in a neutral and secure database which is password protected. Thus, your confidentiality is guaranteed. Your responses will only be looked at in relation to all other responses which means that feedback given to the organisation will be in the form of aggregated responses and not individual perceptions. An executive summary of the results of this study will be made available to you via your organisation's electronic bulletin board.

If you choose to participate, please click on this link. Submitting your responses will be taken as your consent to participate in this study.

Your participation in this study would be greatly appreciated. This research will contribute to a larger body of psychological theory for explaining and predicting human behaviour.

Best regards,
Ameetha Garbharran (ameethag@gmail.com)

APPENDIX 2B: PARTICIPANT INFORMATION SHEET FOR MAIN STUDY TIME 1

School of Human & Community Development

University of the Witwatersrand
Private Bag 3, WITS, 2050
Tel: (011) 717 4500 Fax: (011) 717 4559

Hello,

My name is Ameetha Garbharran, and I am conducting research for the purpose of obtaining a PhD in Psychology at the University of the Witwatersrand. This study will be conducted in the context of the unauthorised copying of software, which is a multi-billion dollar global industry. The focus of this study is on perceptions and attitudes towards copyright infringement. It aims to understand the psychological mechanisms used to justify and rationalise the unauthorised copying of software. You are invited to participate in the first phase of the main study which forms part of a bigger research project. This is a longitudinal study and you will be requested to participate at two points in time; once now and again in three months.

Participation in this research will entail completing the attached questionnaire and one identical to it in three months time. If you are unable to do this, please do not continue with this questionnaire. The questionnaire should take approximately 30 minutes to complete. Participation is voluntary, and no one will be advantaged or disadvantaged for choosing to partake in or to abstain from completing the questionnaire. There are no direct benefits anticipated from participation in this study. The ethical and legal sensitivity of collecting information about the unauthorised copying of software could pose a threat to you in this study and to alleviate this risk you are strongly advised not to furnish any unnecessary identifying information to ensure you protect your identity and free me from the ethical and legal obligations to which I will be bound if such identifying information had to come to light. While questions are asked about your personal circumstances, no identifying information, such as your name or I.D. number, is asked for, and as such you will remain anonymous. You are asked to enter a unique code consisting of your mother's maiden name and the last four digits of your mobile telephone number. Please make a special note of this code as you will be required to enter it again in three months time to ensure that your responses are correctly matched. Your completed questionnaire will not be seen by anyone other than me and my supervisor and your responses will be saved in a neutral and secure database which is password protected. Thus, your confidentiality is guaranteed. Your responses will only be looked at in relation to all other responses which means that feedback given to the organisation will be in the form of aggregated responses and not individual perceptions. An executive summary of the results of this study will be made available to you via your organisation's electronic bulletin board.

If you choose to participate, please click on this link. Submitting your responses will be taken as your consent to participate in this study.

Your participation in this study would be greatly appreciated. This research will contribute to a larger body of psychological theory for explaining and predicting human behaviour.

Best regards,
Ameetha Garbharran (ameethag@gmail.com)

APPENDIX 2C: PARTICIPANT INFORMATION SHEET FOR MAIN STUDY TIME 2

School of Human & Community Development

University of the Witwatersrand
Private Bag 3, WITS, 2050
Tel: (011) 717 4500 Fax: (011) 717 4559

Hello,

My name is Ameetha Garbharran, and I am conducting research for the purpose of obtaining a PhD in Psychology at the University of the Witwatersrand. This study will be conducted in the context of the unauthorised copying of software, which is a multi-billion dollar global industry. The focus of this study is on perceptions and attitudes towards copyright infringement. It aims to understand the psychological mechanisms used to justify and rationalise the unauthorised copying of software. You are invited to participate in the second phase of the main study which forms part of a bigger research project. This is a longitudinal study and you would have completed this questionnaire three months ago. You are requested to complete this questionnaire again so that the responses you entered before can be matched with the ones you enter now.

Participation in this research will entail completing the attached questionnaire and having completed one identical to it three months ago. If you have not done so, please do not continue. The questionnaire should take approximately 30 minutes to complete. Participation is voluntary, and no one will be advantaged or disadvantaged for choosing to partake in or to abstain from completing the questionnaire. There are no direct benefits anticipated from participation in this study. The ethical and legal sensitivity of collecting information about the unauthorised copying of software could pose a threat to you in this study and to alleviate this risk you are strongly advised not to furnish any unnecessary identifying information to ensure you protect your identity and free me from the ethical and legal obligations to which I will be bound if such identifying information had to come to light. While questions are asked about your personal circumstances, no identifying information, such as your name or I.D. number, is asked for, and as such you will remain anonymous. To match your responses correctly with those you provided three months ago, please enter the unique code consisting of your mother's maiden name and the last four digits of your mobile telephone number. Please ensure that this code is identical to the one you entered previously. Your completed questionnaire will not be seen by anyone other than me and my supervisor and your responses will be saved in a neutral and secure database which is password protected. Thus, your confidentiality is guaranteed. Your responses will only be looked at in relation to all other responses which means that feedback given to the organisation will be in the form of aggregated responses and not individual perceptions. An executive summary of the results of this study will be made available to you via your organisation's electronic bulletin board.

If you choose to participate, please click on this link. Submitting your responses will be taken as your consent to participate in this study.

Your participation in this study would be greatly appreciated. This research will contribute to a larger body of psychological theory for explaining and predicting human behaviour.

Best regards,
Ameetha Garbharran (ameethag@gmail.com)

APPENDIX 3: PILOT STUDY QUESTIONNAIRE

Contextual Information

These questions tap into your current context.

Are you a South African citizen?

Yes	**No**	**If no, please state your nationality**	

Are you based in South Africa?

Yes	**No**	**If no, please state the country in which you are based**	

How many people are employed by your organisation?

1-5 employees	**6-10 employees**	**11-20 employees**	**21-50 employees**	**51-100 employees**	**101-200 employees**	**201-500 employees**	**501-1000 employees**	**1000+ employees**

Have software copyright protection policies been enforced in your organisation?

Yes	**No**	**Unsure**

Do you understand the implications of breaching the software copyright protection policies in your organisation?

Yes	**No**	**Unsure**

Biographical Information

These questions are for descriptive purposes only. Please mark the box that best describes you with a tick.

Gender

Male	**Female**

Age

18-25 years	**26-29 years**	**30-34 years**	**35-39 years**	**40-44 years**	**45-49 years**	**50-54 years**	**55-59 years**	**60-64 years**	**65+ years**

Race

African	**Coloured**	**Indian**	**White**	**Other (please specify)**	

Highest level of education

Grade 11 or below	**Grade 12**	**Post-matric certificate**	**Diploma**	**Undergraduate degree**	**Postgraduate degree**

Occupation

Employment status

Student	**Full-time employment**	**Part-time employment**	**Self-employed**	**Retired**	**Unemployed**

Field of expertise

IT	**Sales**	**Marketing**	**Legal**	**Finance**	**Human Resources**
Research	**Technical**	**Administration**	**Other (please specify)**		

Industry sector

Aerospace & Defense	**Automotive**	**Education & Research**	**Engineering & Construction**	**Financial Services**	**Healthcare**
Information Technology	**Life Sciences**	**Manufacturing**	**Media & Entertainment**	**Mining**	**Petrochemicals**
Professional Services	**Public Sector**	**Retail**	**Telecommunication**	**Travel & Transport**	**Utilities**
Other (please specify)					

Technology Usage

These questions describe the nature and frequency of your technology use.

For how many years have you interacted with computers for scholarly, academic, employment, recreational or other purposes?

< 1 year	**1-5 years**	**6-10 years**	**11-15 years**	**16-20 years**	**> 20 years**

How much time in a day do you spend working on a computer?

1-5 hours	**6-10 hours**	**11-15 hours**	**16-20 hours**	**> 20 hours**

How frequently do you use:	**Never**	**At least once a day**	**At least once a week**	**At least once a month**	**Other (please specify)**
Software programming packages such as C++ and Java					
Desktop applications such as word processors and spreadsheets					
Specialist software such as statistical, accounting and architectural drawing packages					
Gaming software such as Warcraft and Civilization					
The Internet					

Unauthorised Copying of Software

These questions tap into your opinions about the unauthorised use, distribution, acquisition, sharing and copying of software. Although some of them overtly ask about your personal involvement in these activities, these responses cannot be traced back to you and there will be no detrimental consequences for being candid.

		Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
MJ1	I would use unauthorised copies of software if I needed to for an important project (academic, work or personal)					
MJ2	It is acceptable for me to use unauthorised copies of software because I am a good person and sometimes deserve to get things free of charge					
MJ3	I have been unfairly taken advantage of in the past so it is acceptable for me to "even the score" through the unauthorised copying of software					
MJ4	It is acceptable to ignore software copyright laws because they are unfair and unjust					
MJ5	Legal software is too expensive for those who do not have the resources to meet their most basic human needs; therefore it is in their best interests to make unauthorised use of software					
MJ6	The widespread distribution of unauthorised copies of software leads to human progress and advancement and serves the interests of the greater good					
EL1	Copying licensed software without paying for it is like "taking from the rich to give to the poor"					
EL2	The unauthorised duplication of licensed software is the same as borrowing it					
EL3	The unauthorised copying of software is not really theft because nothing tangible is being stolen					
EL4	Sharing unauthorised copies of software is a form of redistribution of wealth to re-establish the balance between the rich software houses and ordinary people like you and me					
AC1	Unauthorised downloading of software is not as bad as stealing software from a store					
AC2	Copying licensed software without paying for it is harmless compared to hacking into bank accounts and stealing money					
AC3	The unauthorised copying of one piece of software for personal use is not too serious compared to the unauthorised copying of software in bulk to sell it					
AC4	Selling unauthorised copies of software is better than engaging in criminal activities that cause grievous harm to others					
DISP1	I cannot be blamed for using unauthorised copies of software because everyone around me is doing it					
DISP2	It is unfair to hold me responsible if my manager told me to make an unauthorised copy of the software I needed to do my job					
DIFF1	I cannot be held responsible for software copyright infringement if all I did was show someone where to find a "cracked" copy					
DIFF2	I cannot be held responsible for infringing software copyright laws if I bought software that someone else had reproduced in an unauthorised manner					

		Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
DOC1	Unauthorised copying, use, sharing, acquisition and distribution of software does not cause software houses such huge financial losses that they are put out of business					
DOC2	By copying licensed software without paying for it I am doing software companies a favour by exposing security risks in their software protection programs					
AOB1	Software companies are to blame for infringement of copyright laws because their products are over-priced					
AOB2	Software houses are to blame for the unauthorised copying of software because they do not take strict measures to protect their intellectual property					
AOB3	The phenomenon of unauthorised copying of software was inspired by software companies when they put their products out of the reach of ordinary people					
DEH1	Software companies are cold-blooded snakes who don't feel remorse about ripping off innocent consumers					
DEH2	Software companies are blood-suckers who drain money from unsuspecting victims					
SE1	I could easily acquire unauthorised copies of software if I wanted to					
SE2	I believe that I have the ability to make unauthorised copies of software					
SE3	I am confident that I can make unauthorised copies of software even in challenging situations					
SE4	I am confident that I would not get caught if I downloaded unauthorised copies of software					
INT1	I intend to make unauthorised copies of software in the near future (i.e. in the next three months)					
INT2	All things considered, it is likely that I will use unauthorised copies of software in the near future (i.e. in the next three months)					
INT3	All things considered, I expect to make unauthorised copies of software at some point in the future (i.e. in the next year)					
INT4	I will use unauthorised copies of software in the future (i.e. in the next year)					
In the last three months:		**Never**	**Rarely**	**Occasion-ally**	**Often**	**Very Often**
BEH1	I have made unauthorised copies of software					
BEH2	I made copies of software programs that my friends have purchased					
BEH3	People I know have given me unauthorised copies of their software programs					
BEH4	I have obtained one or more software programs by renting or borrowing the programs and then making a copy					
BEH5	I have made unauthorised copies of software at work to use on my personal computer					
BEH6	I have allowed people to copy software I purchased					

I am comfortable admitting to using unauthorised copies of software provided that my responses remain anonymous

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree

Thank you for your time!

APPENDIX 4: MAIN STUDY QUESTIONNAIRE

Your Unique Identifier

This section is mandatory. To safeguard your identity you have not been asked for your name or any other identifying information. The information you provide here will be used to match your responses in this questionnaire to those you provide in three to four months time. Please make a special note of the information you record in these fields so that you can furnish the same combination in the next questionnaire you complete in three to four months.

Mother's maiden name		**Last 4 digits of your mobile telephone number**	

Contextual Information

These questions tap into your current context.

Are you a South African citizen?

Yes	**No**	**If no, please state your nationality**	

Are you based in South Africa?

Yes	**No**	**If no, please state the country in which you are based**	

How many people are employed by your organisation?

1-5 employees	**6-10 employees**	**11-20 employees**	**21-50 employees**	**51-100 employees**	**101-200 employees**	**201-500 employees**	**501-1000 employees**	**1000+ employees**

Have software copyright protection policies been enforced in your organisation?

Yes	**No**	**Unsure**

Do you understand the implications of breaching the software copyright protection policies in your organisation?

Yes	**No**	**Unsure**

Biographical Information

These questions are for descriptive purposes only. Please mark the box that best describes you with a tick.

Gender

Male	**Female**

Age

18-25 years	**26-29 years**	**30-34 years**	**35-39 years**	**40-44 years**	**45-49 years**	**50-54 years**	**55-59 years**	**60-64 years**	**65+ years**

Race

African	**Coloured**	**Indian**	**White**	**Other (please specify)**	

Highest level of education

Grade 11 or below	**Grade 12**	**Post-matric certificate**	**Diploma**	**Undergraduate degree**	**Postgraduate degree**

Occupation

Employment status

Student	**Full-time employment**	**Part-time employment**	**Self-employed**	**Retired**	**Unemployed**

Field of expertise

IT	**Sales**	**Marketing**	**Legal**	**Finance**	**Human Resources**
Research	**Technical**	**Administration**	**Other (please specify)**		

Industry sector

Aerospace & Defense	**Automotive**	**Education & Research**	**Engineering & Construction**	**Financial Services**	**Healthcare**
Information Technology	**Life Sciences**	**Manufacturing**	**Media & Entertainment**	**Mining**	**Petrochemicals**
Professional Services	**Public Sector**	**Retail**	**Telecommunication**	**Travel & Transport**	**Utilities**
Other (please specify)					

Technology Usage

These questions describe the nature and frequency of your technology use.

For how many years have you interacted with computers for scholarly, academic, employment, recreational or other purposes?

< 1 year	**1-5 years**	**6-10 years**	**11-15 years**	**16-20 years**	**> 20 years**

How much time in a day do you spend working on a computer?

1-5 hours	**6-10 hours**	**11-15 hours**	**16-20 hours**	**> 20 hours**

How frequently do you use:	**Never**	**At least once a day**	**At least once a week**	**At least once a month**	**Other (please specify)**
Software programming packages such as C++ and Java					
Desktop applications such as word processors and spreadsheets					
Specialist software such as statistical, accounting and architectural drawing packages					
Gaming software such as Warcraft and Civilization					
The Internet					

Unauthorised Copying of Software

These questions tap into your opinions about the unauthorised use, distribution, acquisition, sharing and copying of software. Although some of them overtly ask about your personal involvement in these activities, these responses cannot be traced back to you and there will be no detrimental consequences for being candid.

		Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
MJ1	I would use unauthorised copies of software if I needed to for an important project (academic, work or personal)					
MJ2	The widespread distribution of unauthorised copies of software leads to human progress and advancement and serves the interests of the greater good					
EL1	Copying licensed software without paying for it is like "taking from the rich to give to the poor"					
EL2	The unauthorised copying of licensed software is the same as borrowing it					
EL3	The unauthorised duplication of software is a creative endeavour					
AC1	Unauthorised downloading of software is not as bad as stealing software from a store					
DISP1	It is unfair to hold me responsible if my manager told me to make an unauthorised copy of software to do my job					
DISP2	I cannot be blamed if my friends asked me to make unauthorised copies of software for them					
DIFF1	I cannot be blamed for using unauthorised copies of software because everyone around me is doing it					
DIFF2	I cannot be held responsible for infringing software copyright laws if I bought software that someone else had reproduced in an unauthorised manner					
DOC1	Unauthorised copying of software does not cause software houses such huge financial losses that they are put out of business					
DOC2	By copying licensed software without paying for it I am doing software companies a favour by exposing security risks in their software protection programming					
DOC3	It is acceptable to make unauthorised copies of software for personal use because it is not physically harmful to anyone					
AOB1	Software companies are to blame for infringement of copyright laws because their products are over-priced					
DEH1	Software companies are cold-blooded snakes who don't feel remorse about ripping off innocent consumers					
DEH2	Software companies are blood-suckers who drain money from unsuspecting victims					
SE1	I could easily acquire unauthorised copies of software if I wanted to					
SE2	I believe that I have the ability to make unauthorised copies of software					
SE3	I am confident that I can make unauthorised copies of software even in challenging situations					

		Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
INT1	I intend to make unauthorised copies of software in the near future (i.e. in the next three to four months)					
INT2	It is likely that I will use unauthorised copies of software in the near future (i.e. in the next three to four months)					
INT3	I expect that I will make unauthorised copies of software in the near future (i.e. in the next three to four months)					
		Never	**Rarely**	**Occasion-ally**	**Often**	**Very Often**
In the last three to four months:						
BEH1	I have made unauthorised copies of software					
BEH2	I made copies of software programs that my friends have purchased					
BEH3	People I know have given me unauthorised copies of their software programs					
BEH4	I have made unauthorised copies of software at work to use on my personal computer					
BEH5	I have allowed people to copy software I purchased					

I am comfortable admitting to using unauthorised copies of software provided that my responses remain anonymous

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree

Thank you for your time!

APPENDIX 5: ETHICS CLEARANCE CERTIFICATE

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

Division of the Deputy Registrar (Research)

HUMAN RESEARCH ETHICS COMMITTEE (NON-MEDICAL)
R14/49/1 Garbharran

CLEARANCE CERTIFICATE	**PROTOCOL NUMBER H081002**
PROJECT	Structural implications of the activation of moral disengagement in social cognitive theory
INVESTIGATORS	Ms A Garbharran
DEPARTMENT	Psychology
DATE CONSIDERED	10.10.2008
DECISION OF THE COMMITTEE*	Approved unconditionally

NOTE:

This ethical clearance is valid for 2 years and may be renewed upon application

DATE 21.10.2008 **CHAIRPERSON** .....
(Professor R Thornton)

cc: Supervisor : Prof A Thatcher

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and **ONE COPY** returned to the Secretary at Room 10004, 10th Floor, Senate House, University.

I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee. **I agree to a completion of a yearly progress report.**

Signature

This ethical clearance is valid for two years from date of approval.

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

APPENDIX 6: DETAILED PILOT STUDY RESULTS FOR SELF-EFFICACY, INTENTION AND BEHAVIOUR

A6.1 Introduction

The findings that emerged from the pilot study will be presented below in relation to the three preliminary research questions posed regarding the quality of items, psychometric properties and a preliminary comment about dimensionality for each of the ancillary social cognitive constructs (viz. self-efficacy, intention and behaviour) in turn. While these constructs were not central to this investigation (which focused on moral disengagement), they were useful for contextualising moral disengagement's position in social cognitive theory. Thus, they were measured in the pilot investigation to ensure that robust and psychometrically sound measures of self-efficacy, intention and behaviour were used as the basis for drawing conclusions in the main longitudinal investigation.

A6.2 Self-efficacy

Like moral disengagement, self-efficacy is a central construct in social cognitive theory. Bandura's (1986) definition of self-efficacy gravitated towards proficiency and the perception of one's capability to successfully execute specific behaviours but framed self-efficacy as multi-faceted. In the pilot study, however, the exploration of only the proficiency-based aspect of self-efficacy was conducted with the main objectives of ensuring the robustness of the scale and its psychometric properties in mind.

A6.2.1 Which items in the self-efficacy scale are weak or defective?

Descriptive statistics for the items constituting the self-efficacy scale in Table A6.1 revealed normally distributed patterns in the data with univariate skewness and kurtosis values falling well within the -2.00 to +2.00 range proposed by Garson (2011). Correlations between the items revealed that SE4 was possibly the odd item in the scale since it shared the lowest correlations with the other items ranging from $r = 0.30$ to $r = 0.41$. Notwithstanding these relatively weak associations, these correlation coefficients were all statistically significant at the minimum $p < 0.01$ level.

Table A6.1: Simple descriptive statistics and correlations for self-efficacy

		Simple descriptive statistics				Correlations			
		Mean	SD	Skewness	Kurtosis	1	2	3	4
1	SE1	3.58	1.18	-0.80	-0.31	1.00			
2	SE2	3.19	1.30	-0.35	-1.21	0.61***	1.00		
3	SE3	2.65	1.33	0.30	-1.23	0.51***	0.75***	1.00	
4	SE4	2.62	1.13	0.48	-0.75	0.30**	0.31**	0.41***	1.00

* p < 0.05
** p < 0.01
*** p < 0.001

The scale reliability of self-efficacy (see Table A6.2 for internal consistency reliability results) was $\alpha = 0.79$ which exceeded the lower limit of 0.70 for Cronbach's coefficient alpha suggesting that overall the items constituting the scale belonged together and seemed to cohere. However, a closer examination of the inter-item correlations and the Cronbach coefficient alpha with deleted variables supported the elimination of item SE4 from the scale. Its correlation with the total was lowest at r = 0.39 and when the reliability of the scale was calculated with this item deleted overall reliability increased to $\alpha = 0.83$.

Table A6.2: Internal consistency reliability for self-efficacy

		Original 1-factor SE scale		Trimmed 1-factor SE scale	
		Correlation with total	Cronbach α with deleted variable	Correlation with total	Cronbach α with deleted variable
1	SE1	0.59	0.75	0.60	0.86
2	SE2	0.73	0.67	0.78	0.67
3	SE3	0.72	0.68	0.71	0.75
4	SE4	0.39	0.83		
		Original 1-factor SE scale		Trimmed 1-factor SE scale	
Scale reliability		[F1]Items 1-4	α = 0.79	[F1]Items 1-3	α = 0.83

The communality estimate for SE4 in the principal components exploratory factor analysis was 0.34 which was less than the recommended minimum of 0.50 proposed by Hair et al. (2010). Its factor loading in the principal components exploratory factor analysis was greater than 0.50 but relative to the loadings of the other items in the scale, SE4 appeared out of place (See Table A6.3).

Its factor loading in the confirmatory factor analysis (see Table A6.4) was 0.40 which was less than the proposed cut-off of 0.50 and it explained only 16% of the variance in the latent construct (Hair et al., 2010). Therefore, SE4 was ultimately deleted from the proficiency-based self-efficacy scale.

Table A6.3: Principal components exploratory factor analysis of self-efficacy scale

Original SE scale				**Overall MSA = 0.71**
		Factor 1	**Communality**	**Kaiser's MSA**
1	SE1	**0.78**	0.61	0.80
2	SE2	**0.88**	0.78	0.65
3	SE3	**0.87**	0.76	0.68
4	SE4	**0.58**	**0.34**	0.81
Trimmed SE scale				**Overall MSA = 0.67**
		Factor 1	**Communality**	**Kaiser's MSA**
1	SE1	**0.80**	0.65	0.79
2	SE2	**0.92**	0.84	0.62
3	SE3	**0.88**	0.77	0.66

Table A6.4: Confirmatory factor analysis for self-efficacy

		Original SE scale		**Trimmed SE scale**	
		R^2	**Factor loading**	**R^2**	**Factor loading**
1	SE1	0.43	0.66	0.42	0.64
2	SE2	0.81	0.90	0.89	0.94
3	SE3	0.69	0.83	0.63	0.79
4	SE4	0.16	0.40		
		Original SE scale		**Trimmed SE scale**	
Item-factor linkages		^{F1}Items 1-4		^{F1}Items 1-3	
Model fit statistics		$\chi^2_{(2,\ N=107)}$ = 5.33, p=0.07; SRMSR = 0.03; RMSEA = 0.13 [90% CI = 0.00 – 0.26], CFit = 0.12; GFI = 0.98; CFI = 0.98; Critical N = 120; AIC=21.33		**Note**: This model was just-identified which precluded the calculation of goodness-of fit measures	

Note: All factor loadings are significant at p<0.001

A6.2.2 What is the reliability and validity of the self-efficacy scale?

The new trimmed three-item self-efficacy scale appeared to be comprised of items that cohered and belonged together with a Cronbach coefficient alpha of 0.83 (See Table A6.2). In this instance SE1 was identified as potentially problematic since its deletion would have resulted in an increase in the internal consistency reliability of the scale. The deletion of this item would have produced a scale with only two items which would have been less than ideal for confirmatory factor analysis which relies on the three-indicator rule to ensure the identification of measurement models comprising only one latent factor (Kline, 2011). Notwithstanding the potential disadvantages associated with deleting this item it was reviewed to understand if its deletion would add value to the analysis. A qualitative appraisal revealed that this item met the definitional requirements of the self-efficacy construct and that it added a unique element to the scale by focusing on the ease of acquiring unauthorised copies of software as opposed to competence to pirate software which was measured by the other items. While this uniqueness is what probably contributed to its statistical isolation from the other items in the trimmed scale, it also added a vital dimension to the construct of self-efficacy which would otherwise have

excluded all respondents who did not know how to pirate software themselves but who had the competence to source unauthorised copies of software from elsewhere. The results of the principal components exploratory factor analysis for the trimmed self-efficacy scale revealed that the communality estimate and Kaiser's measure of sampling adequacy for item SE1 were adequate since they exceeded the recommended acceptable minimum cut-offs of 0.50 which implied that the potential difficulties associated with this item in the internal consistency reliability analysis were not mirrored in the principal components exploratory factor analysis. The factor loading of SE1 on the latent self-efficacy construct in the confirmatory factor analysis exceeded 0.50 and it explained 42% of the variance in the latent criterion. Thus, there was no compelling evidence to support its deletion from the trimmed self-efficacy scale.

All standardised factor loadings in the confirmatory factor analysis for the trimmed self-efficacy scale were significant and exceeded the minimum rule of thumb value of 0.50 proposed by Hair et al. (2010, p. 686) which suggested that they converged on the single latent construct onto which they were envisaged to load. Thus, there was evidence of convergent validity which implied that the items loading onto the latent construct shared a high proportion of variance in common. Further evidence for convergent validity was derived from the average variance extracted for the one-factor solution (AVE = 0.65) which suggested that there was adequate convergence of the items on the latent construct. The construct reliability value derived from the confirmatory factor analysis for the latent construct in the one-factor solution (CRF1 = 0.84) was above the proposed 0.70 cut-off indicating the presence of internal consistency and confidence that the items loading onto the latent construct consistently represented this underlying construct (Hair et al., 2010, p. 687). Taken together the standardised factor loadings, the average variance extracted and the construct reliability of the trimmed self-efficacy scale provided evidence for the convergent (construct) validity of the latent self-efficacy construct.

A6.2.3 What is the most likely optimal structure of the self-efficacy scale?

The principal components exploratory factor analysis (See Table 6.12) provided evidence for the trimmed self-efficacy scale possessing a uni-dimensional structure. This was congruent with the a priori criterion since theoretically, self-efficacy was conceived of as a one- dimensional construct. The first factor extracted from the analysis of the original scale explained 75% of the variance in the factor solution and had an eigenvalue of 2.48. The first factor was, therefore, the only one to meet the requirements of the latent root criterion (i.e. eigenvalue > 1.00). All the criteria for factor

extraction discussed above, coupled with the scree-plot criterion, supported the extraction of one factor in the original self-efficacy scale. The trimmed self-efficacy scale revealed a similar trend and a one-factor solution emerged from the principal components exploratory factor analysis. In this case the first factor once again explained 75% of the variance in the factor solution and was the only one to meet the latent root criterion with an eigenvalue of 2.25. This analysis revealed that a one-factor solution could both practically and empirically be supported by the factor solution for the trimmed self-efficacy scale.

The normalised multivariate kurtosis of the self-efficacy models based on the original (0.61) and trimmed (0.17) scale items fell well within acceptable limits of multivariate normality with a normalised multivariate kurtosis value of 3.00 typically indicating an acceptable limit (Garson, 2011). The model representing the original four-item self-efficacy scale indicated a good fit to the data (SRMSR = 0.03; CFI = 0.98). However, due to the just-identified status of the model representing the trimmed self-efficacy scale it was not possible to derive goodness-of-fit indicators to comment conclusively on whether or not it supported a uni-dimensional conceptualisation of the construct. Other pieces of evidence, however, derived from the exploratory and confirmatory factor analyses offered support for the notion of self-efficacy as a uni-dimensional construct in the pilot investigation.

A6.3 Intention

The intention variable constituted the theoretical dependent variable in the context of the cross-sectional pilot investigation. For the purpose of this analysis, it was not leveraged in this capacity but was rather explored to assess its psychometric properties as a reliable and valid measure of this construct in the context of software piracy research.

A6.3.1 Which items in the intention scale are weak or defective?

Descriptive statistics for the items constituting the intention scale in Table A6.5 revealed normally distributed patterns in the data with univariate skewness and kurtosis values falling well within the -2.00 to +2.00 range proposed by Garson (2011). For the same reasons discussed earlier in the context of the moral disengagement scale (i.e. to improve the multivariate normality of the scale), the intention items were transformed to optimise them for multivariate normality in preparation for their inclusion in confirmatory factor analysis later in the pilot investigation.

Square root and log (to the base 10) transformations were used. These transformations had the effect of enhancing the multivariate normality of the scale.

A few very high inter-item correlations ($r \geq 0.80$) in the correlation matrix hinted at the possible problem of multicollinearity in the intention scale which suggested that some of the items may have been redundant. The author attempted to distinguish between the intention to *make* pirated copies of software as opposed to the intention to *use* unauthorised copies of software in the scale but the very high intercorrelations suggested that these items essentially appeared to have been interpreted as ostensibly similar in the manner in which individuals responded to them.

Table A6.5: Simple descriptive statistics and correlations for intention

		Original INT item				Transformed INT item				Correlations			
		Mean	SD	Skewness	Kurtosis	Mean	SD	Skewness	Kurtosis	1	2	3	4
1	INT1	1.94	1.18	1.44	1.28	0.51	0.52	0.60	-0.67	1.00			
2	INT2	2.25	1.33	0.76	-0.73	2.25	1.33	0.76	-0.73	0.82***	1.00		
3	INT3	2.22	1.31	0.82	-0.60	1.43	0.42	0.54	-1.02	0.80***	0.76***	1.00	
4	INT4	2.45	1.33	0.47	-1.11	0.74	0.58	-0.06	-1.44	0.77***	0.79***	0.79***	1.00

* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$

The scale reliability for intention (see Table A6.6 for internal consistency reliability results of original and trimmed intention scales) exceeded the lower limit of 0.70 for Cronbach's coefficient alpha suggesting that overall the items constituting the scale belonged together and seemed to cohere. A qualitative review of the scale's original items indicated that one of them (INT4) referenced the likelihood of engaging in a behaviour at some point in the next year while the other items referenced one's propensity to engage in the behaviour in question in the shorter term (i.e. in the next three to four months). The decision was made to delete the INT4 item from the intention scale as it captured long-term intention while the other items in the scale tapped into short-term intention. In so doing, the author made the decision to only consider the impact of short-term intention in this study. This seemed appropriate in the light of the relatively short three month time-lag that was catered for between the two measurement occasions in the main longitudinal study during which causes and their effects in the domain of software piracy were allowed to unfold. Thus, when the author noticed that the INT2 item was also potentially problematic, because its deletion would have resulted in an increase in the overall reliability of the intention scale, the following factors were considered before the decision was made to retain it.

Table A6.6: Internal consistency reliability for intention

		Original 1-factor INT scale		Trimmed 1-factor INT scale	
		Correlation with total	**Cronbach α with deleted variable**	**Correlation with total**	**Cronbach α with deleted variable**
1	INT1	0.86	0.78	0.85	0.61
2	INT2	0.85	0.91	0.83	0.88
3	INT3	0.83	0.82	0.80	0.72
4	INT4	0.84	0.77		
		Original 1-factor INT scale		**Trimmed 1-factor INT scale**	
Scale reliability		[F1]Items 1-4	α = 0.85	[F1]Items 1-3	α = 0.77

This was the only item that tapped into intention to use as opposed to intention to make unauthorised copies of software. Therefore, the author believed that the utility of the scale would have been diminished if this item was deleted. A closer look at the impact of deleting INT2 on overall scale reliability revealed that even when it was included, the scale still retained an acceptable level of internal consistency reliability ($\alpha = 0.85$). Therefore, on the basis of these considerations, INT2 was retained in the intention scale for use in the main longitudinal investigation.

The results of the exploratory and confirmatory factor analysis did not contribute any further insights to the identification of potentially weak or defective items in the intention scale so these results will be presented and discussed in relation to the research questions that follow about intention's reliability and validity and its likely factor structure.

A6.3.2 What is the reliability and validity of the intention scale?

The new trimmed three-item intention scale appeared to be comprised of items that generally cohered and belonged together with a Cronbach coefficient alpha of 0.77 (see Table A6.6). In this instance INT2 was identified as potentially problematic since its deletion would have resulted in an increase in the internal consistency reliability of the scale. The deletion of this item would have produced a scale with only two items which would have been less than ideal for confirmatory factor analysis for the same reasons discussed earlier in the context of the self-efficacy scale. The author believed that retaining this item would solve more problems than it would create. Therefore, INT2 was retained.

Table A6.7: Principal components exploratory factor analysis of intention scale

Original INT scale				**Overall MSA = 0.85**
		Factor 1	**Communality**	**Kaiser's MSA**
1	INT1	**0.92**	0.85	0.84
2	INT2	**0.92**	0.84	0.85
3	INT3	**0.91**	0.83	0.86
4	INT4	**0.91**	0.84	0.86
Trimmed INT scale				**Overall MSA = 0.75**
		Factor 1	**Communality**	**Kaiser's MSA**
1	INT1	**0.94**	0.88	0.72
2	INT2	**0.92**	0.85	0.76
3	INT3	**0.92**	0.84	0.79

All standardised factor loadings in the confirmatory factor analysis for the trimmed intention scale (see Table A6.8) were significant and exceeded the minimum rule of thumb value of 0.50 proposed by Hair et al. (2010, p. 686) which suggested that they converged on the single latent construct onto which they were envisaged to load. Thus, there was evidence of convergent validity which implied that the items loading onto the latent construct shared a high proportion of variance in common.

A6.3.3 What is the most likely optimal structure of the intention scale?

The principal components exploratory factor analysis (See Table A6.7) provided preliminary evidence for the trimmed intention scale's uni-dimensional structure. All the criteria for factor extraction seemed to support the extraction of one factor in the intention scale. The confirmatory factor analysis also supported the conceptualisation of intention as a uni-dimensional construct in the pilot study.

Table A6.8: Confirmatory factor analysis for intention

		Original INT scale		**Trimmed INT scale**	
		R^2	**Factor loading**	**R^2**	**Factor loading**
1	INT1	0.81	0.90**	0.86	0.93**
2	INT2	0.79	0.89**	0.77	0.88*
3	INT3	0.77	0.88**	0.74	0.86*
4	INT4	0.78	0.88**		
		Original INT scale		**Trimmed INT scale**	
Item-factor linkages		^{F1}Items 1-4		^{F1}Items 1-3	
Model fit statistics		$\chi^2_{(2,\ N=107)}$ = 4.50, p=0.11; SRMSR = 0.01; RMSEA = 0.11 [90% CI = 0.00 – 0.25], CFit = 0.17; GFI = 0.98; CFI = 0.99; Critical N = 142; AIC=20.50		**Note**: This model was just-identified which precluded the calculation of goodness-of fit measures	

Note: All factor loadings are significant at p<0.001

A6.4 Software piracy behaviour

In the context of the pilot investigation, software piracy behaviour was measured as an instance of past behaviour.

A6.4.1 Which items in the behaviour scale are weak or defective?

The items in the original software piracy behaviour scale revealed elevated skewness (BEH2, BEH4, BEH5, BEH6) and kurtosis (BEH1, BEH2, BEH4, BEH5, BEH6) values which fell outside of Garson's (2011) -2.00 to +2.00 range for acceptable levels of univariate normality. The items in this scale were transformed to optimise them for normality using log (to the base 10) transformations. This yielded more acceptable skewness and kurtosis limits except for the BEH4 item which had an elevated kurtosis value of 2.15 (see Table A6.9).

Table A6.9: Simple descriptive statistics for software piracy behaviour scale

		Original BEH item				Transformed BEH item			
	Variable	**Mean**	**SD**	**Skewness**	**Kurtosis**	**Mean**	**SD**	**Skewness**	**Kurtosis**
1	BEH1	1.72	1.11	1.73	2.37	0.39	0.52	0.97	-0.28
2	BEH2	1.48	0.90	2.29	5.33	0.26	0.45	1.49	1.04
3	BEH3	1.82	1.05	1.25	0.92	0.46	0.52	0.58	-1.03
4	BEH4	1.39	0.88	2.47	5.82	0.21	0.43	1.85	2.15
5	BEH5	1.41	0.92	2.33	4.76	0.22	0.45	1.84	1.95
6	BEH6	1.56	1.00	2.01	3.67	0.31	0.49	1.29	0.39

The correlations between BEH4 and the other items (see Table A6.10) in the software piracy behaviour scale were consistently lower (ranging from r = 0.57 to r = 0.67) than the other inter-correlations which ranged from r = 0.65 to r = 0.84.

Table A6.10: Correlations between items in the software piracy behaviour scale

		1	2	3	4	5	6
1	BEH1	1.00					
2	BEH2	.76***	1.00				
3	BEH3	.84***	.75***	1.00			
4	BEH4	.57***	.67***	.59***	1.00		
5	BEH5	.68***	.66***	.65***	.62***	1.00	
6	BEH6	.81***	.75***	.77***	.62***	.65***	1.00

* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$

The internal consistency reliability results (see Table A6.11) for the original scale revealed that the deletion of item BEH4 would not have resulted in any reduction in the reliability of the scale

suggesting that its elimination would not have had a detrimental impact but its item-total correlation (r = 0.71) was lowest relative to the other items in the scale rendering it the odd one out.

Table A6.11: Internal consistency reliability for software piracy behaviour

		Original 1-factor BEH scale		Trimmed 1-factor BEH scale	
		Correlation with total	**Cronbach α with deleted variable**	**Correlation with total**	**Cronbach α with deleted variable**
1	BEH1	0.86	0.91	0.88	0.91
2	BEH2	0.83	0.91	0.82	0.92
3	BEH3	0.84	0.91	0.85	0.91
4	BEH4	0.69	0.93		
5	BEH5	0.74	0.93	0.72	0.93
6	BEH6	0.84	0.91	0.84	0.91
		Original 1-factor BEH scale		**Trimmed 1-factor BEH scale**	
Scale reliability		[F1]Items 1-6	α = 0.93	[F1]Items 1-3 & 5-6	α = 0.93

However, its factor loadings in the exploratory (0.78) and confirmatory (0.69) factor analyses (see Tables A6.12 and A6.13 respectively) were consistently lower than those of its counterparts and it accounted for the lowest amount of variance (48%) in the latent construct in the confirmatory factor analysis solution. While the factor loadings and the amount of variance accounted for fell within acceptable limits and exceeded minimum cut-off criteria, the evidence suggested that BEH4 was consistently responded to differently compared to the other items in the software piracy behaviour scale. This item asked whether individuals had made copies of software that they had rented or borrowed. It could have been perceived as a double-barrelled question making it difficult for respondents to separate scenarios when they rented software and made a copy and when they borrowed software and made a copy. This could have resulted in responses to this item deviating from the responses provided to other behaviour items which may have been perceived as more clear-cut. The BEH4 item was, therefore, eliminated rendering software piracy behaviour a five-item scale.

The reliability of the trimmed software piracy behaviour scale was α = 0.93 and no overt problems were detected in the remaining scale items based on an examination of the internal consistency reliability analysis (see Table A6.11), the principal components exploratory factor analysis (see Table A6.12) and the confirmatory factor analysis (see Table A6.13). There was no evidence that the deletion of any remaining items in the scale would produce an increase in scale reliability and the item-total correlation estimates exceeded 0.70 suggesting that the items cohered and belonged together in the trimmed software piracy behaviour scale.

Table A6.12: Principal components exploratory factor analysis of software piracy behaviour scale

Original BEH scale				**Overall MSA = 0.91**
		Factor 1	**Communality**	**Kaiser's MSA**
1	BEH1	**0.91**	0.82	0.86
2	BEH2	**0.89**	0.79	0.92
3	BEH3	**0.89**	0.80	0.90
4	BEH4	**0.78**	0.60	0.90
5	BEH5	**0.82**	0.67	0.94
6	BEH6	**0.89**	0.80	0.92
Trimmed BEH scale				**Overall MSA = 0.90**
		Factor 1	**Communality**	**Kaiser's MSA**
1	BEH1	**0.93**	0.86	0.86
2	BEH2	**0.89**	0.78	0.92
3	BEH3	**0.91**	0.82	0.88
4	BEH5	**0.82**	0.66	0.95
5	BEH6	**0.90**	0.81	0.90

Table A6.13: Confirmatory factor analysis for software piracy behaviour

		Original BEH scale		**Trimmed BEH scale**	
		R^2	**Factor loading**	**R^2**	**Factor loading**
1	BEH1	0.83	0.91***	0.85	0.92***
2	BEH2	0.73	0.85**	0.71	0.84**
3	BEH3	0.79	0.89***	0.80	0.89***
4	BEH4	0.48	0.69**		
5	BEH5	0.57	0.76**	0.55	0.74**
6	BEH6	0.78	0.88***	0.77	0.88***
		Original BEH scale		**Trimmed BEH scale**	
Item-factor linkages		F_1Items 1-6		F_1Items 1-3 & 5-6	
Model fit statistics		$\chi^2_{(9,\ N=107)} = 19.33$, p=0.29; SRMSR = 0.03; RMSEA = 0.10 [90% CI = 0.04 – 0.17], CFit = 0.08; GFI = 0.94; CFI = 0.98; Critical N = 93; AIC=43.33		$\chi^2_{(5,\ N=107)} = 3.45$, p=0.63; SRMSR = 0.01; RMSEA = 0.00 [90% CI = 0.00 – 0.11], CFit = 0.75; GFI = 0.99; CFI = 1.00; Critical N = 341; AIC=23.45	

Note: All factor loadings are significant at p<0.001

A6.4.2. What is the reliability and validity of the software piracy behaviour scale?

In the principal components exploratory factor analysis communality and Kaiser's measure of sampling adequacy values exceeded the minimum recommended guideline of 0.50 and the factor loadings ranged from 0.82 to 0.93. The confirmatory factor analysis of the trimmed software piracy behaviour scale revealed factor loadings ranging from 0.74 to 0.92 and all the items accounted for at least 50% of the variance in the latent criterion. The item which accounted for the lowest percentage of variance in the latent factor was BEH5 (55%) which notwithstanding fell within acceptable limits.

The standardised factor loadings, the average variance extracted and the construct reliability of the software piracy behaviour scale provided evidence for convergent validity. All standardised factor loadings in the confirmatory factor analysis were significant and exceeded 0.50 (Hair et al., 2010, p. 686) which suggested that they converged on the single latent construct onto which they

were envisaged to load. Thus, the items loading onto the latent construct shared a high proportion of variance in common. The average variance extracted for the one-factor solution (AVE = 0.74) suggested that there was adequate convergence of the items on the latent construct. The construct reliability value derived from the confirmatory factor analysis for the latent construct (CRF1 = 0.93) indicated the presence of internal consistency and confidence that the items loading onto it consistently represented the underlying construct (Hair et al., 2010, p. 687). The Cronbach coefficient alpha (α = 0.93) was equivalent with the construct reliability value derived from the confirmatory factor analysis for the software piracy behaviour scale. Based on this evidence, the measurement model for the confirmatory factor analysis of the trimmed software piracy behaviour variable appeared to be valid. Coupled with evidence of its good internal consistency reliability, the psychometric properties of the software piracy behaviour scale were deemed sound.

A6.4.3 What is the most likely optimal structure of the software piracy behaviour scale?

The principal components exploratory factor analysis yielded evidence for a uni-dimensional software piracy behaviour scale. This was consistent with the a priori criterion in which software piracy was envisaged as a single factor. The single factor extracted from the analysis accounted for 75% of variance in the factor solution and had an eigenvalue of 4.48. It was the only factor that met the latent root criterion with an eigenvalue greater than 1.00. All the criteria for factor extraction supported a one-factor solution. The trimmed set of software piracy behaviour items also yielded a single-factor solution. In this case, the one factor extracted from the principal components exploratory factor analysis explained 79% of the variance in the factor solution and had an eigenvalue of 3.94. It was the only factor that met the latent root criterion and all the criteria for factor extraction once again supported the notion of software piracy behaviour as a single-faceted construct.

The normalised multivariate kurtosis value for the original set of behaviour items (20.02) was notably reduced with the deletion of the BEH4 item (16.12). Notwithstanding the improvement, this value still exceeded the recommended cut-off of 3.00 for acceptable levels of multivariate normality. It was noted that if the data in the behaviour scale in the main longitudinal investigation did not fall within more acceptable limits of normalised multivariate kurtosis then a possible remedy could be to parcel like items in the quest to achieve more acceptable levels of multivariate normality. It was also noted, however, that multivariate normality in the behaviour

scale could not be expected since it was not anticipated that the distribution of software piracy behaviour in the sample would be normal (this will be discussed in more detail later in the context of the main longitudinal study). The SRMSR and CFI goodness-of-fit indices suggested that the models for both the original and the trimmed scales for software piracy behaviour as a uni-dimensional construct fit the data well with the model representing the trimmed software piracy behaviour scale offering a better fit (AIC = 23.45 < AIC = 43.33 for the original software piracy behaviour scale) to the data.

APPENDIX 7: DETAILED RESULTS FROM THE MAIN LONGITUDINAL STUDY FOR SELF-EFFICACY, INTENTION AND BEHAVIOUR

A7.1 Self-efficacy

Simple descriptive statistics for the items in the self-efficacy scale (see Table A7.1) revealed that their skewness and kurtosis values at Time 1 and Time 2 fell into the acceptable range for univariate normality proposed by Garson (2011). Therefore, no transformations were performed.

Table A7.1: Simple descriptive statistics for self-efficacy items at Time 1 and Time 2

		SE Time 1				SE Time 2			
	Variable	**Mean**	**SD**	**Skewness**	**Kurtosis**	**Mean**	**SD**	**Skewness**	**Kurtosis**
1	SE1	3.49	1.18	-0.54	-0.80	3.53	1.21	-0.71	-0.53
2	SE2	3.37	1.18	-0.42	-0.81	3.49	1.18	-0.74	-0.35
3	SE3	2.90	1.18	0.08	-1.10	2.95	1.20	-0.09	-1.06

The correlation analysis (see Table A7.2) revealed that all intercorrelations were significant at the $p < 0.001$ level and were greater than 0.30 but less than 0.80, with the exception of one correlation coefficient at Time 2 which was equal to 0.80, indicating that, generally, their associations were neither too weak nor too strong. This pointed to the homogeneity of the scale and the absence of multicollinearity suggesting that the items generally cohered and belonged together in the uni-dimensional self-efficacy scale.

Table A7.2: Correlation analyses of self-efficacy items at Time 1 and Time 2

		1	**2**	**3**
1	SE1	1.00		
		1.00		
2	SE2	.76***	1.00	
		.71***	1.00	
3	SE3	.61***	.77***	1.00
		.72***	.80***	1.00

Note: All correlation coefficients in white bands pertain to relationships between self-efficacy items at Time 1 while correlation coefficients in grey bands pertain to relationships between self-efficacy items at Time 2.
* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$

The intercorrelations between the self-efficacy items at Time 1 and Time 2 were significant at the $p < 0.001$ level, the correlation coefficients were greater than 0.30 and the more than acceptable overall MSA values (Time 1: MSA = 0.69; Time 2: MSA = 0.74) implied adequately strong relationships between the items to appropriately use principal components exploratory factor

analysis on the self-efficacy scale. The principal components exploratory factor analysis results are presented in Table A7.3.

Table A7.3: Exploratory principal components factor analysis of self-efficacy at Time 1 and Time 2

SE Time 1				**Overall MSA = 0.69**
		Factor 1	**Communality**	**Kaiser's MSA**
1	SE1	**0.88**	0.77	0.74
2	SE2	**0.94**	0.88	0.63
3	SE3	**0.88**	0.78	0.73
SE Time 2				**Overall MSA = 0.74**
		Factor 1	**Communality**	**Kaiser's MSA**
1	SE1	**0.89**	0.79	0.81
2	SE2	**0.92**	0.85	0.72
3	SE3	**0.92**	0.85	0.71

The communality and MSA estimates for individual items suggested that they possessed sufficient explanatory power and met the acceptable minimum levels for explaining the underlying factor pattern in the solution which supported a single factor structure. The single factor extracted at Time 1 explained 81% of the variance in the solution and had an eigenvalue of 2.43 and the sole factor extracted at Time 2 explained 83% of the variance and had an eigenvalue of 2.49. At each measurement point, only one factor satisfied the latent root criterion (i.e. eigenvalue > 1.00). In combination, the latent root criterion and the scree plot criterion supported the extraction of a unitary self-efficacy factor. This solution was both practically and empirically supported at both measurement points.

Internal consistency reliability results for the self-efficacy construct are presented in Table A7.4. Scale reliabilities at Time 1 and Time 2 were acceptable ($\alpha \geq 0.70$). All item-total correlations exceeded 0.50 suggesting that, overall, the items seemed to correlate very well with the scale. No increment in scale reliability would have resulted if any of the items had been deleted. Thus, the internal consistency results suggested that the items in the self-efficacy scale appeared to belong together, were coherent and seemed to be measuring the same underlying construct.

To test the viability of self-efficacy as a unitary construct, alluded to by the results of the principal components exploratory factor analysis, a confirmatory factor analysis, the results of which are presented in Table A7.5, was undertaken. Due to the just-identified status of the model representing self-efficacy it was not possible to derive goodness-of-fit indicators to determine whether a uni-dimensional conceptualisation was supported by the data.

Table A7.4: Internal consistency reliability for self-efficacy at Time 1 and Time 2

		SE Time 1		SE Time 2	
		Correlation with total	**Cronbach α with deleted variable**	**Correlation with total**	**Cronbach α with deleted variable**
1	SE1	0.73	0.87	0.76	0.89
2	SE2	0.85	0.76	0.81	0.84
3	SE3	0.74	0.86	0.82	0.83
		SE Time 1		**SE Time 2**	
Scale reliability		[F1]Items 1-3	α = 0.88	[F1]Items 1-3	α = 0.90

Instead, other pieces of evidence were reviewed. The parameter estimates (factor loadings and indicator error variances) did not assume illogical or out of range values and were statistically significant at the $p < 0.001$ level, with the exception of one indicator error variance (SE2) which was not statistically significant. Standardised factor loadings ranged from 0.78 to 0.98 at Time 1 and from 0.80 to 0.90 at Time 2 exceeding the 0.50 guideline proposed by Hair et al. (2010, p. 685) confirming that the self-efficacy items were strongly and significantly related to their associated latent construct at each point in time. The direction of the factor loadings was consistent with what was originally predicted. The error variance that was not statistically significant produced a point of strain in the model detected with the Wald test which suggested that there would be no significant decrement in model fit if this parameter estimate was deleted. In spite of this aberration, the findings generally supported the statistical and substantive viability of the factor loadings in particular, at least two-thirds of the indicator error variance estimates at Time 1 and all the indicator error variances at Time 2 which engendered positive sentiment for the viability of the unitary model of self-efficacy explored in this investigation.

The items loading onto the latent factor in the single-factor model of self-efficacy at Time 1 (AVE = 0.73) and Time 2 (AVE = 0.74) appeared to converge adequately indicating that more of the variance in the items was explained by the latent structure imposed on them than by error. The construct reliability estimate for the self-efficacy scale was 0.89 at Time 1 and Time 2. This suggested good internal consistency and indicated that the items in the scale consistently measured the same underlying construct. Cumulatively, the statistical and substantive viability of the parameter estimates especially the factor loadings, which suggested that the measured items were strongly and significantly associated with the single latent construct onto which they were envisaged to load, and evidence of convergent validity, which implied that the items were all measuring the same underlying construct, alluded to the viability of the interpretation of self-efficacy as a uni-dimensional construct.

Table A7.5: Confirmatory factor analysis for self-efficacy at Time 1 and Time 2

		SE Time 1		SE Time 2	
		R^2	**Factor loading**	**R^2**	**Factor loading**
1	SE1	0.61	0.78	0.64	0.80
2	SE2	0.95	0.98	0.79	0.89
3	SE3	0.62	0.79	0.80	0.90
		SE Time 1		**SE Time 2**	
Item-factor linkages		[F1]Items 1-3		[F1]Items 1-3	
Model fit statistics		**Note**: This model was just-identified which precluded the calculation of goodness-of fit measures		**Note**: This model was just-identified which precluded the calculation of goodness-of fit measures	

Note: All factor loadings are significant at p<0.001

The results of the tests for longitudinal measurement invariance for the self-efficacy construct are presented in Table A7.6. An examination of the parameter estimates suggested that the indicators were strongly and significantly related to the underlying single latent construct at both points in time, two of three error covariances were statistically significant at the $p < 0.001$ level with standardised estimates ranging from 0.11 to 0.17 (the third error covariance associated with item SE2 at Time 1 and Time 2 was not significant with an estimate of 0.01), and the test-retest covariance of the latent construct was statistically significant at the $p < 0.001$ level. Despite the single point of strain associated with the error covariance that was not statistically significant, on the whole these pieces of information suggested that the factor structure of self-efficacy was temporally equivalent (i.e. identical at both assessment points) which allowed for additional tests to examine other aspects of measurement invariance such as equality of factor loadings and equality of indicator error variances.

The result of the χ^2 difference test (χ^2_{diff} (8) = 5.85 *ns*) between the equal form and the equal factor loadings models was not significant suggesting that the equality constraints applied to the factor loadings of identical items measured at two points in time did not significantly degrade model fit implying that items demonstrated equivalent relationships (i.e. factor loadings) to the latent construct over time. The test for equality of indicator error variances held the error variances of identical items at both assessment points to equality. This test did not result in a significant decrease in model fit (χ^2_{diff} (11) = 15.48, $p < 0.13$) revealing that each item's error variance was temporally invariant (i.e. equivalent over time). Based on findings from the equal form and equal factor loadings tests of longitudinal measurement invariance it was possible to conclude that self-efficacy was temporally equivalent across the two measurement points and that

Table A7.6: Test for longitudinal measurement invariance of self-efficacy at Time 1 and Time 2

	χ^2	*df*	χ^2diff	Δ*df*	*p*
SE as a 1-factor construct					
Equal form	4.03	5			
Equal factor loadings	9.88	8	5.85	3	0.12
Equal indicator error variances	15.48	11	5.60	3	0.13
Test-retest covariances of latent constructs	F1 @ T1	F1 @ T2	0.71		
Model fit statistics	Equal form	SRMSR = 0.02; RMSEA = 0.00 [90% CI = 0.00 – 0.09], CFit = 0.77; GFI = 0.99; CFI = 1.00; Critical N = 550; AIC = 36.03			
	Equal factor loadings	SRMSR = 0.04; RMSEA = 0.03 [90% CI = 0.00 – 0.09], CFit = 0.60; GFI = 0.98; CFI = 1.00; Critical N = 314; AIC = 35.88			
	Equal indicator error variances	SRMSR = 0.03; RMSEA = 0.05 [90% CI = 0.00 – 0.09], CFit = 0.51; GFI = 0.98; CFI = 1.00; Critical N = 255; AIC = 35.48			

Note: All latent factor covariances were significant at p<0.001

the factor loadings and indicator error variances of the items constituting the construct were invariant over time. Essentially, therefore, the measurement of self-efficacy appeared to be stable over time in terms of its factor structure, its factor loadings and its error variances.

A7.2 Intention

Univariate skewness and kurtosis values for items in the intention to pirate software scale (see Table A7.7) were acceptable according to Garson (2011). Despite their acceptable univariate normality, however, the multivariate normality of the items constituting this construct at both measurement points was more acceptable when they were transformed to optimise them for normality using exponentiation to the power 0.25.

Table A7.7: Simple descriptive statistics for original and transformed intention items at Time 1 and Time 2

		Original INT item				Transformed INT item			
	Variable	**Mean**	**SD**	**Skewness**	**Kurtosis**	**Mean**	**SD**	**Skewness**	**Kurtosis**
Time 1									
1	INT1	1.70	0.85	1.10	0.50	1.12	0.13	0.62	-0.82
2	INT2	2.22	1.25	0.69	-0.77	1.19	0.17	0.27	-1.27
3	INT3	1.75	0.90	1.13	0.67	1.13	0.14	0.61	-0.81
Time 2									
1	INT1	1.70	0.82	1.00	0.30	1.12	0.13	0.54	-0.96
2	INT2	2.22	1.26	0.51	-1.17	1.18	0.17	0.20	-1.54
3	INT3	1.76	0.90	1.00	0.12	1.13	0.14	0.54	-0.97

The correlation analysis in Table A7.8 revealed that all intercorrelations were significant at the $p < 0.001$ level and were greater than 0.30 but less than 0.80 revealing associations were neither too weak nor too strong. Thus, the intention scale appeared to be homogeneous and was characterised by the absence of multicollinearity indicating that the items generally belonged together.

Table A7.8: Correlation analyses of intention items at Time 1 and Time 2

		1	2	3
1	INT1	1.00		
		1.00		
2	INT2	.56***	1.00	
		.71***	1.00	
3	INT3	.90***	.60***	1.00
		.84***	.77***	1.00

Note: All correlation coefficients in white bands pertain to relationships between intention items at Time 1 while correlation coefficients in grey bands pertain to relationships between intention items at Time 2.
* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$

The intercorrelations between the intention items at Time 1 and Time 2 were significant ($p < 0.001$), the correlation coefficients were greater than 0.30, and the overall MSA values (Time 1: MSA = 0.66; Time 2: MSA = 0.73) were more than acceptable. This implied adequately strong relationships between the items to appropriately apply principal components exploratory factor analysis to the intention scale. The principal components exploratory factor analysis results are presented in Table A7.9.

Table A7.9: Principal components exploratory factor analysis of intention at Time 1 and Time 2

INT Time 1				**Overall MSA = 0.66**
		Factor 1	**Communality**	**Kaiser's MSA**
1	INT1	**0.94**	0.87	0.61
2	INT2	**0.79**	0.63	0.91
3	INT3	**0.94**	0.89	0.60
INT Time 2				**Overall MSA = 0.73**
		Factor 1	**Communality**	**Kaiser's MSA**
1	INT1	**0.92**	0.86	0.72
2	INT2	**0.89**	0.80	0.82
3	INT3	**0.95**	0.90	0.67

The communality and MSA estimates for individual items suggested that they possessed sufficient explanatory power and met the acceptable minimum levels for explaining the underlying factor pattern in the solution which supported a single factor structure. The single factor extracted at Time 1 explained 80% of the variance in the solution and had an eigenvalue of 2.39 and the sole factor extracted at Time 2 explained 85% of the variance and had an eigenvalue of 2.55. At each measurement point, only one factor satisfied the latent root criterion (i.e. eigenvalue > 1.00). In combination, the latent root criterion and the scree plot criterion supported the extraction of a unitary intention factor. This solution was practically and empirically supported at Time 1 and Time 2.

Table A7.10 contains internal consistency reliability results for the intention construct. Scale reliabilities at Time 1 and Time 2 were acceptable ($\alpha \geq 0.70$). All item-total correlations (> 0.50) suggested that the items tended to correlate very well with the scale overall. The deletion of item INT2 would have produced an increment in scale reliability at both measurement points indicating that this item was potentially problematic. This item pertained to the intention to *use* unauthorised copies of software in the near future and stood in contrast to the other two items in the scale which pertained to the intention to *make* unauthorised copies of software in the near future. This potential problem was briefly discussed in the results of the pilot study. Notwithstanding the potential problem with the inclusion of item INT2 (which seemed to be measuring a different aspect of the intention construct compared with the other two items) it did not detract significantly from overall scale reliability which was still more than acceptable at α = 0.86 at Time 1 and α = 0.90 at Time 2. Thus, the items generally appeared to cohere and overall they seemed to be measuring the same underlying construct which supported the only viable exploration of intention as a one-dimensional construct in this study.

Table A7.10: Internal consistency reliability for intention at Time 1 and Time 2

		INT Time 1		INT Time 2	
		Correlation with total	**Cronbach α with deleted variable**	**Correlation with total**	**Cronbach α with deleted variable**
1	INT1	0.80	0.74	0.82	0.85
2	INT2	0.61	0.95	0.77	0.91
3	INT3	0.82	0.72	0.86	0.81
		INT Time 1		**INT Time 2**	
Scale reliability		[F1]Items 1-3	α = 0.86	[F1]Items 1-3	α = 0.90

To test the viability of intention as a unitary construct as alluded to by the results of the principal components exploratory factor analysis, a confirmatory factor analysis, the results of which are presented in Table A7.11, was undertaken. The parameter estimates (factor loadings and indicator error variances) did not assume illogical or out of range values and were statistically significant at the $p < 0.001$ level, with the exception of one indicator error variance associated with item INT3 which was not statistically significant at Time 1 and which was statistically significant at the $p <$ 0.01 level at Time 2. Standardised factor loadings ranged from 0.62 to 0.93 at Time 1 and from 0.65 to 0.96 at Time 2 exceeding the 0.50 guideline proposed by Hair et al. (2010, p. 685) confirming that the intention items were strongly and significantly related to the latent factor at each point in time. The direction of the factor loadings was consistent with what was originally predicted. The error variance that was not statistically significant produced a point of strain in the model at Time 1 detected with the Wald test which suggested that there would be no significant

decrement in model fit if this parameter estimate was deleted. In spite of this aberration, the findings generally supported the statistical and substantive viability of the factor loadings in particular, at least two-thirds of the indicator error variance estimates at Time 1 and all the indicator error variances at Time 2 supported the viability of the unitary model of intention.

Table A7.11: Confirmatory factor analysis for intention at Time 1 and Time 2

		INT Time 1		INT Time 2	
		R^2	**Factor loading**	**R^2**	**Factor loading**
1	INT1	0.86	0.93	0.78	0.88
2	INT2	0.39	0.62	0.65	0.80
3	INT3	0.93	0.97	0.91	0.96
		INT Time 1		**INT Time 2**	
Item-factor linkages		[F1]Items 1-3		[F1]Items 1-3	
Model fit statistics		**Note**: This model was just-identified which precluded the calculation of goodness-of fit measures		**Note**: This model was just-identified which precluded the calculation of goodness-of fit measures	

Note: All factor loadings are significant at p<0.001

The items loading onto the latent factor in the single-factor model of intention to pirate software at Time 1 (AVE = 0.73) and Time 2 (AVE = 0.78) appeared to converge adequately indicating that more of the variance in the items was explained by the latent structure imposed on them than by error. The construct reliability estimate for the intention scale was 0.89 at Time 1 and 0.91 at Time 2. This suggested good internal consistency and indicated that the items in the scale consistently measured the same underlying construct. Cumulatively, the statistical and substantive viability of the parameter estimates, especially the factor loadings which suggested that the measured items were strongly and significantly associated with the single latent construct onto which they were envisaged to load, and evidence of convergent validity which implied that the items were all measuring the same underlying construct, alluded to the viability of the interpretation of intention to pirate software as a uni-dimensional construct.

The results of the tests for longitudinal measurement invariance for the intention construct are presented in Table A7.12. An examination of the parameter estimates suggested that the indicators were strongly and significantly related to the underlying single latent construct at both points in time. However, only one of three error covariances was statistically significant at the $p <$ 0.001 level with a standardised estimate of 0.14 while the error covariances associated with items INT1 at Time 1 and Time 2 (0.004) and INT3 at Time 1 and Time 2 (-0.03) were not statistically significant. The test-retest covariance of the latent construct was statistically significant at the $p <$ 0.001 level. The factor loadings and test-retest covariance findings supported the notion that the

factor structure of intention was temporally equivalent but the error covariance results did not. Notwithstanding this inconsistency, further tests examining other aspects of longitudinal measurement invariance such as equality of factor loadings and equality of indicator error variances were conducted to explore the intricacies of the intention to pirate software construct.

Table A7.12: Test for longitudinal measurement invariance of intention at Time 1 and Time 2

	χ^2	*df*	χ^2diff	Δ*df*	*p*
INT as a 1-factor construct					
Equal form	12.64	5			
Equal factor loadings	22.58	8	9.94	3	0.02
Equal indicator error variances	35.22	11	12.64	3	0.005
Test-retest covariances of latent constructs	F1 @ T1	F1 @ T2	0.76		
Model fit statistics	Equal form	SRMSR = 0.04; RMSEA = 0.09 [90% CI = 0.03 – 0.15], CFit = 0.13; GFI = 0.98; CFI = 0.99; Critical N = 176; AIC = 44.64			
	Equal factor loadings	SRMSR = 0.06; RMSEA = 0.10 [90% CI = 0.05 – 0.14], CFit = 0.05; GFI = 0.96; CFI = 0.99; Critical N = 138; AIC = 48.58			
	Equal indicator error variances	SRMSR = 0.05; RMSEA = 0.10 [90% CI = 0.07 – 0.14], CFit = 0.01; GFI = 0.94; CFI = 0.98; Critical N = 112; AIC = 55.22			

Note: All latent factor covariances were significant at p<0.001

The result of the χ^2 difference test (χ^2_{diff} (8) = 9.94, $p < 0.05$) between the equal form and the equal factor loadings models was significant suggesting that the equality constraints applied to the factor loadings of identical items measured at two points in time significantly degraded model fit implying that items did not demonstrate equivalent relationships (i.e. factor loadings) with the latent construct over time. Specifically, the results suggested that the factor loadings for INT2 on the latent construct at Time 1 and Time 2 were potentially not equivalent. However, when the equality constraint for this item was released the same pattern in the structure of the intention variable over time (based on a comparison of the unstandardised factor loadings) was noted compared to the pattern in the structure observed when the equality constraint was applied. This close parallel was a more important indicator of the equivalence of the relationships of the factor loadings on the latent construct over time and carried more weight than the statistically significant χ^2_{diff} test in the light of the other evidence that supported the temporal equivalence of the intention construct. The test for the equality of indicator error variances which held the error variances of identical items at both assessment points to equality resulted in a significant decrease in model fit (χ^2_{diff} (11) = 35.22, $p < 0.01$) revealing that the each item's error variance was temporally non-invariant (i.e. not equivalent over time). As noted previously, tests of equal indicator residual variances generally fail in actual datasets and are not as important to longitudinal measurement invariance as equal form and equal factor loadings tests are (Brown, 2006, p. 266). Therefore, the lack of invariance for the indicator error variances was not deemed problematic in this study. Despite some signs that pointed to the lack of temporal equivalence in

the intention construct across the two measurement points, its factor structure and the pattern of its unstandardised factor loadings appeared more similar than different.

A7.3 Behaviour

Simple descriptive statistics for items in the software piracy behaviour scale (see Table A7.13) revealed elevated univariate skewness and kurtosis levels for behaviour items BEH2, BEH4 and BEH5 at Time 1 and Time 2. A review of all five items in the scale, to establish how they could be optimised for normality, revealed that log (to the base 10) transformations led to improvements and were applied to the data. While the transformations produced acceptable levels of univariate normality, the multivariate normality, measured with the normalised multivariate kurtosis (NMK) indicator, of the items constituting this construct at both measurement points remained high (Time 1: NMK = 10.31; Time 2: NMK = 16.24). This scale measured software piracy behaviour as an instance of antisocial behaviour. Typically, prosocial behaviour would be expected to be normally distributed in a population and antisocial behaviour, which would only be engaged in by a minority of individuals, would not be. Thus, it was a theoretical impossibility to expect software piracy behaviour to be normally distributed in the sample of consumers of technology-oriented products and services drawn for this study. However, it was important for the scale to be as multivariate normal as possible so that statistical analyses using maximum likelihood estimation could proceed with integrity. It is important to note that these transformations to improve multivariate normality did not change the order (high original scores remained high after the transformation) or alter the fundamental meaning of the variable. To achieve more acceptable levels of multivariate normality the researcher opted to parcel the transformed items in the behaviour scale. The original conceptualisation of this scale was uni-dimensional and the decision to parcel items did not negate this conceptualisation. Three broad, crudely defined categories of software piracy behaviour, which remained sensitive to the uni-dimensional structure of the scale, were imposed on the set of five items. Two items pertaining to *making* unauthorised copies of software; a general item (BEH1) and a specific item pertaining to making unauthorised copies of software at work to use on a personal computer (BEH5), were clustered together to form the first composite behaviour item. The second was an original behaviour item (BEH2) which involved making unauthorised copies of software purchased by friends.

Table A7.13: Simple descriptive statistics for original and transformed individual and parcelled behaviour items at Time 1 and Time 2

		Original individual BEH item				Transformed individual BEH item			
	Variable	**Mean**	**SD**	**Skewness**	**Kurtosis**	**Mean**	**SD**	**Skewness**	**Kurtosis**
Time 1									
1	BEH1	1.49	0.75	1.43	1.32	0.30	0.42	0.94	-0.59
2	BEH2	1.29	0.60	2.22	4.87	0.18	0.35	1.67	1.47
3	BEH3	1.69	0.86	1.28	1.54	0.41	0.46	0.54	-1.01
4	BEH4	1.35	0.73	2.10	3.62	0.21	0.40	1.65	1.26
5	BEH5	1.36	0.64	1.69	2.04	0.22	0.38	1.30	0.17
Time 2									
1	BEH1	1.47	0.73	1.53	1.77	0.29	0.41	1.00	-0.43
2	BEH2	1.24	0.52	2.13	3.69	0.15	0.32	1.80	1.74
3	BEH3	1.66	0.85	1.27	1.50	0.39	0.46	0.59	-1.02
4	BEH4	1.30	0.62	2.17	4.24	0.18	0.36	1.69	1.47
5	BEH5	1.33	0.64	1.98	3.40	0.20	0.37	1.52	0.88
		Original parcelled BEH item				**Transformed parcelled BEH item**			
	Variable	**Mean**	**SD**	**Skewness**	**Kurtosis**	**Mean**	**SD**	**Skewness**	**Kurtosis**
Time 1									
1	BEH1	2.85	1.26	1.62	2.17	0.51	0.70	1.23	0.52
2	BEH2	1.29	0.60	2.22	4.87	0.36	0.70	1.67	1.47
3	BEH3	3.04	1.32	1.23	0.75	0.63	0.74	0.84	-0.51
Time 2									
1	BEH1	2.77	1.20	1.67	2.31	0.47	0.69	1.28	0.50
2	BEH2	1.24	0.52	2.13	3.69	0.31	0.64	1.80	1.74
3	BEH3	2.99	1.33	1.36	1.21	0.60	0.75	0.95	-0.30

The third item was a composite of items assessing the unauthorised copying of software when others were involved either in offering pirated copies of software to the respondent (BEH3) or in being offered pirated copies of software by the respondent (BEH6). The transformed parcelled items demonstrated reasonably acceptable levels of univariate normality based on Garson's (2011) guidelines and reasonably acceptable levels of multivariate normality (Time 1: NMK = 4.99; Time 2: NMK = 7.77) at both measurement points and were selected as the items representing the behaviour scale in the longitudinal investigation.

The correlation analysis in Table A7.14 revealed that all intercorrelations were significant at the $p < 0.001$ level and were greater than 0.30 but less than 0.80 indicating that their associations were neither too weak nor too strong. This pointed to the homogeneity of the scale and the absence of multicollinearity offering the first glimpse of evidence that the items generally cohered and belonged together in the single-factor behaviour scale.

The intercorrelations between the behaviour items at Time 1 and Time 2 were significant at the $p < 0.001$ level, the correlation coefficients were greater than 0.30 and the more than acceptable overall MSA values (Time 1: MSA = 0.74; Time 2: MSA = 0.74) implied adequately strong relationships between the items to appropriately use exploratory principal components factor analysis on the behaviour scale.

Table A7.14: Correlation analyses of software piracy behaviour items at Time 1 and Time 2

		1	2	3
1	BEH1	1.00		
		1.00		
2	BEH2	.69***	1.00	
		.68***	1.00	
3	BEH3	.67***	.66***	1.00
		.69***	.70***	1.00

Note: All correlation coefficients in white bands pertain to relationships between software piracy behaviour items at Time 1 while correlation coefficients in grey bands pertain to relationships between software piracy behaviour items at Time 2.
* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$

The principal components exploratory factor analysis results are presented in Table A7.15. The communality and MSA estimates for individual items suggested that they possessed sufficient explanatory power and met the acceptable minimum levels for explaining the underlying factor pattern in the solution which supported a single factor structure. The single factor extracted at Time 1 explained 78% of the variance in the solution and had an eigenvalue of 2.34 and the sole factor extracted at Time 2 explained 79% of the variance and had an eigenvalue of 2.38. At each measurement point, only one factor satisfied the latent root criterion (i.e. eigenvalue > 1.00). In combination, the latent root criterion and the scree-plot criterion supported the extraction of a unitary behaviour factor. This solution was practically and empirically supported at both Time 1 and Time 2.

Table A7.15: Exploratory principal components factor analysis of software piracy behaviour at Time 1 and Time 2

BEH Time 1				**Overall MSA = 0.74**
		Factor 1	**Communality**	**Kaiser's MSA**
1	BEH1	**0.89**	0.79	0.72
2	BEH2	**0.89**	0.78	0.73
3	BEH3	**0.88**	0.77	0.75
BEH Time 2				**Overall MSA = 0.74**
		Factor 1	**Communality**	**Kaiser's MSA**
1	BEH1	**0.88**	0.78	0.75
2	BEH2	**0.89**	0.79	0.74
5	BEH3	**0.89**	0.80	0.73

Internal consistency reliability results for the behaviour construct are presented in Table A7.16. Scale reliabilities at Time 1 and Time 2 were acceptable ($\alpha \geq 0.70$). All item-total correlations exceeded 0.50 indicating that the items tended to correlate very well with the scale overall. No increment in scale reliability would have resulted if any of the items had been deleted offering further evidence that these items were not problematic. Thus, the internal consistency results suggested that the parcelled items in the scale of behaviour as a unitary construct appeared to belong together, were coherent and seemed to be measuring the same underlying construct.

Table A7.16: Internal consistency reliability for software piracy behaviour at Time 1 and Time 2

		BEH Time 1		BEH Time 2	
		Correlation with total	**Cronbach α with deleted variable**	**Correlation with total**	**Cronbach α with deleted variable**
1	BEH1	0.75	0.79	0.74	0.82
2	BEH2	0.74	0.80	0.75	0.81
3	BEH3	0.72	0.82	0.76	0.81
		BEH Time 1		**BEH Time 2**	
Scale reliability		[F1]Items 1-3	α = 0.86	[F1]Items 1-3	α = 0.87

To test the viability of behaviour as a unitary construct as alluded to by the results of the principal components exploratory factor analysis, a confirmatory factor analysis, the results of which are presented in Table A7.17, was undertaken. The parameter estimates (factor loadings and indicator error variances) did not assume illogical or out of range values and were statistically significant at the $p < 0.001$ level. Standardised factor loadings ranged from 0.80 to 0.84 at Time 1 and from 0.82 to 0.84 at Time 2 exceeding the 0.50 guideline proposed by Hair et al. (2010, p. 685) confirming that the parcelled items were strongly and significantly related to their associated latent construct at each point in time. The direction of the factor loadings was consistent with what was originally predicted. These findings supported the statistical and substantive viability of the parameter estimates which enhanced the positive sentiment towards the composite unitary model based on the absence of localised areas of strain. The items loading onto the latent factor in the single-factor model of behaviour at Time 1 (AVE = 0.67) and Time 2 (AVE = 0.69) appeared to converge adequately indicating that more of the variance in the items was explained by the latent structure imposed on them than by error. The construct reliability estimate for the behaviour scale was 0.86 at Time 1 and 0.87 at Time 2. These suggested good internal consistency and indicated that the items in the scale consistently measured the same underlying construct. Cumulatively, the statistical and substantive viability of the parameter estimates, especially the factor loadings which suggested that the measured items were strongly and significantly associated with the single latent construct onto which they were envisaged to load, and evidence of convergent validity, which implied that the items were all measuring the same underlying construct, alluded to the viability of the interpretation of behaviour as uni-dimensional construct.

The results of the tests for longitudinal measurement invariance for the behaviour construct are presented in Table A7.18.

Table A7.17: Confirmatory factor analysis for software piracy behaviour at Time 1 and Time 2

		BEH Time 1		BEH Time 2	
		R^2	Factor loading	R^2	Factor loading
1	BEH1	0.70	0.84	0.66	0.82
2	BEH2	0.68	0.82	0.69	0.83
3	BEH3	0.64	0.80	0.71	0.84
		BEH Time 1		**BEH Time 2**	
Item-factor linkages		[F1]Items 1-3		[F1]Items 1-3	
Model fit statistics		**Note**: This model was just-identified which precluded the calculation of goodness-of fit measures		**Note**: This model was just-identified which precluded the calculation of goodness-of fit measures	

Note: All factor loadings are significant at p<0.001

An examination of the parameter estimates suggested that the indicators were strongly and significantly related to the underlying latent construct at both points in time, two of three error covariances were statistically significant at the $p < 0.001$ level with equal standardised estimates of 0.14 (the third error covariance associated with item BEH2 at Time 1 and Time 2 was not significant with an estimate of 0.05), and the test-retest covariance of the latent construct was statistically significant at the $p < 0.001$ level. Despite the single point of strain associated with the error covariance that was not statistically significant, on the whole these pieces of information suggested that the factor structure of behaviour was temporally equivalent (i.e. identical at both assessment points) which allowed for additional tests to examine other aspects of measurement invariance such as equality of factor loadings and equality of indicator error variances.

Table A7.18: Test for longitudinal measurement invariance of software piracy behaviour at Time 1 and Time 2

	χ^2	*df*	χ^2diff	Δ*df*	*p*
BEH as a 1-factor construct					
Equal form	17.37	5			
Equal factor loadings	17.70	8	0.33	3	0.95
Equal indicator error variances	21.09	11	3.39	3	0.34
Test-retest covariances of latent constructs	F1 @ T1	F1 @ T2	0.71		
Model fit statistics	Equal form	SRMSR = 0.03; RMSEA = 0.11 [90% CI = 0.06 – 0.17], CFit = 0.03; GFI = 0.97; CFI = 0.98; Critical N = 128; AIC = 49.37			
	Equal factor loadings	SRMSR = 0.03; RMSEA = 0.08 [90% CI = 0.03 – 0.13], CFit = 0.15; GFI = 0.97; CFI = 0.99; Critical N = 176; AIC = 43.70			
	Equal indicator error variances	SRMSR = 0.04; RMSEA = 0.07 [90% CI = 0.02 – 0.11], CFit = 0.22; GFI = 0.98; CFI = 0.99; Critical N = 187; AIC = 41.09			

Note: All latent factor covariances were significant at p<0.001

The result of the χ^2 difference test (χ^2_{diff} (8) = 17.70 *ns*) between the equal form and the equal factor loadings models was not significant suggesting that the equality constraints applied to the factor loadings of identical items measured at two points in time did not significantly degrade model fit implying that items demonstrated equivalent relationships (i.e. factor loadings) to the

latent construct over time. The test for equality of indicator error variances did not result in a significant decrease in model fit (χ^2_{diff} (11) = 21.09, *ns*) revealing that the each item's error variance was temporally invariant (i.e. equivalent over time). Based on findings from the equal form and equal factor loadings tests of longitudinal measurement invariance it was possible to conclude that behaviour was temporally equivalent across the two measurement points and that the factor loadings and indicator error variances of the items constituting the construct were invariant over time.